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Associated Students of the Montana College of Mineral Science and Technology

The Amplifier

Montana College of Mineral Science and Technology

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Support the war!

Honorary degrees to be given

Three native Butte men will be among five Montana Tech alumni to be awarded professional degrees June 1 at the 69th commencement exercises on campus, according to Dr. E. G. Koch, president of the college.

Those to receive degrees are Robert G. Ingersoll, Jr., geologist in charge of Butte mines, The Anaconda Co., geological engineering degree; William R. Kahla, vice president, producing, Oasis Oil Co., Libya, petroleum engineering degree; Frank J. Laird, assistant director, environmental engineering, The Anaconda Co., New York, mining engineering degree; Thomas P. Liss, general maanger, Highland Valley area, Bethlehem Copper Corp. Ltd., British Columbia, mineral dressing engineering degree, and Lawrence J. McCarthy, Lawrence J. McCarthy and Associates, Plains, Mont., geophysical engineering degree.

In order to receive such an honor, the person must have been engaged in a mineral science professional career for at least ten years, the last five of which have been in a responsible capacity, and have contributed in an outstanding manner to his profession.

Mr. Robert G. Ingersoll

Ingersoll was born in Fargo, N.D. He received his Bachelor's degree in geological engineering from Montana Tech in 1951. In 1964 he received his Master's in the same field. He was assistant mining engineer for The Anaconda Company from 1951 to 1952. In 1952 he joined the geological department. He was a geologist from 1952 to 1964, senior geologist 1964 to 1966, and mines geologist from 1966 to 1967. Currently Ingersoll is geologist in charge of Butte mines.

Ingersoll was co-author of a paper entitled "Important Newly Discovered Oreshoots in Butte," which was presented at the Northwest Mining Association meeting in 1963 and of an article called "Ore Deposits at Butte, Montana," which appeared in the American Institute of Mining and Metallurgical Engineers publication, "Ore Deposits o fthe United States, 1933-1967."

He is a member of A.I.M.E., Montana Tech Alumni Association, Northwest Mining Association, Butte Chamber of Commerce, Elks and Rotary.

Ingersoll's wife is the former Mallory Anne O'Connell of Butte. They have three children.

William R. Kahla

Kahla's birthplace is Lake City, Minn. In 1949 he was awarded a Bachelor of Science degree in petroleum engineering from Montana Tech. He began his career with Marathon Oil Co. in 1949. During his years with the company he served as field engineer in Sidney, Neb., reservoir engineer, Casper, Wyo., district reservoir engineer, Cody, Wyo., and division reservoir engineer, Casper. In 1959 he accepted a transfer to Oasis Oil Company of Libya, Inc., which is a part of Marathon Oil. With Oasis, Kahla has served as chief engineer, assistant to the executive vice president and since 1966 has been vice president in charge of operations, engineering and planning.

Kahla is a member of the Board of Directors of the Society of Petroleum Engineers of A.I.M.E. and represents the overseas district. He was the first president of the Libyan Association of Petroleum Technologists and is a member of the Anglican Church Council.

His wife is the former Lois Jean ,Bompart of Manhattan Mont. They have two children.

Laird was born in Butte and was graduated from Montana Tech in 1944 with a B.S. in mining engineering. In 1946 he joined The Anaconda Company as assistant mining engineer. He then became head unit mining engineer. Between 1951 and 1957 he was assistant ventilation engineer, ventilation engineer and assistant industrial hygiene engineer, and head ventilation and industrial hygiene engineer. Between 1957 and 1965 he was assistant chief ventilation and industrial hygiene engineer. In 1965 Laird took his present position as assistant director of environmental engineering in New York.

Mr. Frank J. Laird

His publications include papers entitled "Mine Ventilation," "Expanded Cellular Foam in Metal Mining" and "Industrial Hygiene in Underground Mines." He has worked on several cooperative publications with the U.S. Public Health Service and the U.S. Bureau of Mines.

He is a member of A.I.M.E., Butte Rotary, Serra, Elks, Community Chest, United Givers and Y.M.C.A.

Laird and his wife, the former Andree Flemming of Butte have five children.

Mr. Thomas P. Liss

Liss also hails from Butte. He was graduated from Montana Tech in 1950 with a degree in metallurgical engineering. After graduation he joined the Galigher Company of Salt Lake as a junior metallurgist. In his 16 years with Galigher he also served as a consultant to such firms as Anaconda Cerro de Pasco, Minerales Productos, Derivedios and Bethlehem Copper Corp. Ltd. He was made vice president of the company and is a member of the Board of Directors. Presently he is employed by Bethlehem Copper as general manager of the Highland Valley division.

Liss is a member of A.I.M.E. and of the Canadian Institute of Mining and Metallurgical Engineers. He is married to the former Elena Limber of Santiago, Chile.

McCarthy is another Butte man. He received his B.S. in petroleum engineering in 1956 from Montana Tech. Upon graduation he joined the Geophysical Service Company, Inc. For two years between 1956 and 1960 he also served as a consultant for Standard Oil of California. In 1960 he became a security analyst for Wm. H. Tegtmeyer & Company of Butte, and in 1961 he joined Consolidated Geophysical Surveys as the West Coast manager. In November 1961 he formed his own firm, GEOMAC, and moved to Granville, Ohio. The firm of exploration consultants now is called Lawrence J. McCarthy and Associates, located in Plains, Mont.

McCarthy's article, "Geophysics is Key to New Ohio Trempealeau Exploration" appeared in the Jan. 20, 1964 issue of The Oil and Gas Journal.

Mr. Lawrence J. McCarthy

He is a member of the Society of Exploration Geophysicists, the Montana Geological Society, the Ohio Geological Society and the Ohio Oil and Gas Association. He is St. Williams Parish Council president, Thompson Falls; social chairman Knights of Columbus, Newark, Ohio; member Chamber of Commerce, Butte, Newark and Thompson Falls.

McCarthy's wife is the former Margaret J. Stobie of Plains, Mont. They have two daughters.

Bonneville High School Chorus

High school students recipients of scholarships

Three local high school students have been selected as recipients of the First Metals Bank and Trust Company scholarships for pre-professional studies at Montana Tech. James Fulks and Linda Ratliff of Butte High School and Claudine Micone of Girls' Central High School will receive the scholarships, according to W. C. Laity, scholarship committee chairman.

James Fulks, who is a member of various organizations at Butte High, plans to become a high school or college teacher and major in history. He is the son of Mr. and Mrs. Robert Fulks, 3120 Burlington.

Miss Ratliff, daughter of Mr. and Mrs. Sidney R. Ratliff, 2508 Ottawa Street, plans to major in psychology and minor in social welfare in order to be qualified for a career in psychiatric social work. She is a member of Speech and Drama clubs as well as the National Honor Society at Butte High School.

Miss Micone plans to major in sociology or French. She is the daughter of Mr. and Mrs. Vincent N. Micone, 814 West Mercury. Her high school activities include Pep Club, French Club, Model UN, and the school newspaper.

Professor Laity added that several students from Butte have been able to obtain financial assistance for their college educations through these scholarships provided by the First Metals Bank and Trust Company.

Fee Change

by Kent Bowman

An increase in student fees for Montana Tech has been approved by the Board of Regents. These new fees will be effective July 1, 1969.

Fees for Montana resident students will increase fifteen dollars ($15) per semester or a total of thirty dollars ($30). Non-resident students will be required to pay an additional thirty dollars ($30) per semester for a total of sixty dollars ($60).

Board and room rates for students living in the Residence Hall will also increase in July. A double room will now be ninety-four dollars ($94) a month. Rent for a single room or a suite will be ninety-seven ($97) per month.

Montana Tech students are not alone, however. Student fees and board and room rates are increasing at each of the six units of the Montana University System.

Students awards

It was recently announced that three Montana Tech students were recipients of a special award from the American Metals Climax Foundation.

The purpose of the award is to honor writing ability.

According to Mr. Charles Hendon, assistant professor of the Engineering Science Department, the papers may be a special project or a paper generated as part of a regular classroom assignment.

The papers were judged according to four special characteristics: (1) the paper demonstrating the most effort; (2) the greatest technical content; (3) clearness of presentation, and (4) the best use of grammar.

One hundred dollars was presented to each of the three winning students.

The judges were from the Tech faculty, and the awards were presented at the annual Honors Convocation on May 27.

Also in the awards spotlight were several Butte Central and Butte High seniors who plan to attend Montana Tech in the fall.

The First Metals Bank and Trust Company has awarded four scholarships that will cover fees and boks for the '69-'70 academic year.

The recipients are: Robert Yakawich and Claudine Micone of Butte Central, and Bob Fulks and Linda Ratliff of Butte High.

Dr. Bartlett's Speech

by George Rider

Dr. Neil Bartlett, professor of chemistry at Princeton University addressed the Montana Section of the American Chemical Society Tuesday, May 6, at the Red Rooster supper club. His topic was "The Oxidizing Properties of the Transition Metal Hexaflorides and Related Compounds.

According to Dr. Frank Diebold, assistant professor of Chemistry at Montana Tech D.r, Bartlett is a specialist in inorganic fluorine chemistry and has been widely honored for his creation of the first noble-gas compound. Before his achievement in June 1962, at the age of 29, the rare gas, xenon, was believed to be "noble," that is incapable of joining to other elements to form stable compounds.

Dr. Bartlett's creation of the compound xenon hexafluroplatinate clearly demonstrated the misconceptions about the nobel-gas electron. All chemists have, as a consequence some to realize the simple theory has severe limitations and specialists in chemical theory have been stimulated to resolve the problem of bonding brought into focus by the noble-gas compounds.

In 1965, Dr. Bartlett received the Research Corporation Award, which is given in recognition of a man of science "who has made notable contributions to human knowledge." He also has received the 1965 Steacie Prize, awarded by the National Council of Canada for outstanding young scientists, and the 1962 Corday Morgan Medal and Prize of the Chemical Society of Great Britain.

Dr. Bartlett received his Ph.D. from King's College, the University of Durham, England, in 1958. He joined the faculty of the University of British Columbia in Vancouver, B.C. in 1958 as a lecturer and rose to the rank of professor in 1964. He was appointed to the Princeton University faculty as a professor in 1966.

Parkinson to receive degree

An honorary law degree will be conferred on C. Jay Parkinson who will deliver the commencement address June 1 at Montana Tech's sixty-ninth graduation ceremonies, according to Dr. E. G. Koch, president of the college.

Mr. C. Jay Parkinson

Parkinson is chairman of the Board of Directors and chief executive officer of The Anaconda Company.

He was graduated from the University of Utah in 1931 and received his LL.B. in 1934 from the University of Utah Law School.

Parkinson has been a member of law firms in Salt Lake and in Los Angeles. In 1955 he was elected vice president of the Anaconda Aluminum Company, New York. Parkinson was appointed general counsel of The Anaconda Company in 1957 an dthe following year was elected vice president. In 1964 he became president of the Company and of the Chile Copper Company, the Chile Exploration Company, the Andes Copper Mining Company and vice president of the Mines Investment Corporation.

Aside from his business, Parkinson is director, Chase Manhattan Bank, American Arbitration Association, United Cerebral Palsy Research and Educational Foundation, Inc., and Stauffer Chemical Company. He is vice president of the New York State Chamber of Commerce and is a member of the national board of directors of the National Advisory Council of Muscular Dystrophy Association.

Scholarship awarded

by Mike Bowman

The Prudential Federal Savings and Loan Association of Butte awarded a scholarship to a freshman student at Tech.

He is Steve Czehura, son of Mr. and Mrs. Emil Czehura of Helena. Steve is an engineering student who plays football as a guard for the Orediggers. Last year he also received two prominent Boy Scout honors, the Eagle Scout award, which is the highest in scouting, and the God and Country award, which was presented for service to his local church.

The Prudential scholarship of $350 is authorized and administered by the Board of Directors of the Prudential Federal Savings and Loan Association. It is presented annually to a student in any field at Montana Tech.

Clay Report Published

The sixth in a series of progress reports on a study of the clay and shale resources of Montana has been published by the Montana Bureau of Mines and Geology. Results of ceramic tests, expandability tests, X-ray difraction analyes and chemical analyses (including available alumina for selected samples) are reported for 54 samples from the Helena area, 48 from the Great Falls aea, and 32 from other localities in Montana.

Methods of collecting and preparing the samples and performing the various tests are rescribed. The results are presented in tabular form, and the suitability of the general locations from which samples have been obtained, as reported in this and previous publications in the series.

A copy of this bulletin can be obtained by writing or visiting the Montana Bureau of Mines and Geology, room 203-B, Main Hall, Montana College of Mineral Science and Technology. The price of the bulletin is fifteen cents.

Biology Dept.

by Mike Bowman

Tech's new Biology Department promises to grow and enlarge next year. Dr. Gless, the department head, is in the process of setting up two laboratories and ordering top-rate biology equipment.

With additional courses, one more faculty member, and a large antlicipated enrollment, the Biology Department may prove eventually to be one of Tech's finest.

Bureau of Mines

The appointment of Uuno Sahinen as State Geologist and Director of the Montana Bureau of Mines and Geology at Montana College of Mineral Science and Technology has been announced by Dr. E. G. Koch, president of the college.

Sahinen, who is a certified professional geologist and a registered mining engineer, qualifies for the position under provisions of a new law passed by the 1969 State Legislature.

After graduating in 1929 from Montana Tech, Sahinen worked for two years for the North Butte Mining Company, then joined the staff of the Montana Bureau of Mines and Geology as a geologist. While working for the Bureau he obtained his Master's degree in geological engineering. In 1940-41, as geological engineer for the United States Engineering Department, he was assigned to the construction of Fort Peck Dam. He served in the U. S. Navy for three years during World War II and returned to the Bureau as a geologist in 1945. In 1957 he was appointed chief geologist and in 1962 he became associate director. Since 1965 he has served also as director of the Montana Coal Resources Research Council.

Sahinen is a member of the American Institute of Mining, Metallurgical and Petroleum Engineers, the Society of Economic Geologists, the National Society of Professional Engineers, the American Institute of Professional Geologists, the Association of American State Geologists, the Montana Geological Society, the American Mining Congress, the Northwest Mining Association and the Montana Mining Association. He also is active in Rotary Club and is on the Gold Hill Lutheran Church Council.

Tech Has Exhibit at Home Show

Montana Tech was represented with a display at the annual Home and Sport Show by Tech's Circle K Club. The club, under the direction of chairman Mike Chapman, planned and manned the exhibit with the aid of the A.W.S. The exhibit was termed as very benifical in terms of reaching many people who would ordinarilly not come in contact with the school.

Departments providing display were Chemistry, Metallurgy, Petroleum, Speech, Biology, Languages and Mineral Dressing. The sonic ring cleaner and electronics of water displays drew large crowds. Much literature about Tech was also given out.

Coeds and Circle K members operated the displays and answered questions about Tech. The space for the exhibit was provided by the First Metals Bank and Trust Co.

Editor Has Varied Background

by Janet Martin

Michael Dewey, an active member of many clubs at Tech, has successfully managed the Amplifier during the past few months. Mike has dedicated many hours as the editor of the school paper and much of the success of it is a result of his dedication.

Mike is originally from Cuba, where he lived for twelve years before establishing residency in the United States at Chapel Hill, North Carolina. He later chose Emory University in Atlanta, Georgia for his first year of college. It was there that he developed many of his ideas on publishing and acquired knowledge on successfully printing newspapers. He was affiliated with "Alpha 66", which was a Cuban Revolutionary organization dedicated to the overthrow of Castro, and served as co-chairman of a "Teach In", (Conversation: Viet Nam), whose purpose was 'to make known the reasons we should not be in Viet Nam". During his three years at Tech he has belonged to many campus organizations such as the Mineral Club, the Camera Club, the Anderson Carlisle Society and the International Club. Mike is also a member of the Fraternity of Phi Gamma Delta.

Mike has enjoyed his "experiences at Tech and out west" and hopes to spend more time here.

He will graduate this spring with Bachelor of Science Degrees in Mining and Geological Engineering and will be employed at the New Jersey Zinc Company in Jefferson City, Tennessee.

Aeromagnetic map available for study

The U.S. Geological Survey has released a preliminary draft of an aeromagnetic map of the Barker and Neihart 15-minute quadrangles depicting an area at the juncture of Judith Basin, Cascade ,and Meagher Counties. Total intensity of the magnetic field is contoured at intervals of 20 gammas. Flight paths are indicated by thin broken lines. Scale of the map is 1:62,500, or about 1 mile/inch.

The area mapped includes both the Neihart and the Barker-Hughesville mining districts, which were also shown on geologic maps recently released to open files. The geologic maps are on a larger scale, however, and show only the east-central one-fourth of the area shown on the aeromagnetic map.

To correlate aeromagnetic anomalies with terrain requires comparison with the topographic sheets for the same area. The aeromagnetic map shows no roads, towns, land subdivisions, or physical features.

One copy of the aeromagnetic map of the Barker and Neihart quadrangles has been placed in the Library at Montana College of Mineral Science and Technology, Butte. Copies can be made at private expense by various blueprint and reproduction companies in Spokane.

The U.S. Geological Survey has also released to open file a preliminary map of the central part of northwestern flank of the Ruby Range, on both sides of the Madison-Beaverhead County line. The rocks exposed in the area are Precambrian metamorphosed rocks complexly folded and faulted. Of principal economic interest is the iron formation that extends across Carter Creek near the central part of the area. This deposit has been shown in greater detail on a smaller map previously placed in open file, however. The present map depicts the relationship of the iron deposit to the general geology and structure of the surrounding area.

The map is drawn on a topographic base at a scale of 1:24,000, or 2000 ft./in. Lithologic units emphasized are dolomite, iron-formation, quartzite, and metadiabose-metagabbro. Several other kinds of rock are identified by letter designations, and structural attitudes are indicated by abundant dip-and-strike symbols.

One copy of the map, in part hand colored, is available for study in the Library at Montana College of Mineral Science and Technology, Butte. Material from which copies can be made at private expense is filed with the U.S. Geological Survey, Building 25, Federal Center, Denver, Colorado 80225.

In Closing

The school year is about to end and this is perhaps the last chance I will have to sound off as a student. When I took over the editorship of the Amplifier, I began with the statement, "Fellow collegians, faculty and staff; this is your newspaper. Its continuation is made possible through your financial support. Its success is a measure of your active concern and willingness to contribute to its body." These words are as true today as they were last fall when I made them. Yet in a way they are far more vital now than ever before. I did not realize the course upon which I had embarked. The scope and nature of the Amplifier has been altered two or three times during the year and it is still undergoing change.

In the closing of the academic year I feel a measure of fullfillment in the development of the Amplifier. This accomplishment could have never been achieved without the people who really make up the paper. These silent workers are the writers and staff of the paper, who have contribued to its body. I hope that they may have felt as myself that they have participated in a most worthwhile and rewarding experience. The success of the paper is theirs.

Two Policemen are killed by wounded gunman

by Eric Johnson

After wounding a gunman twice in each leg and three times in the right forearm, in a valiant attempt to prevent his shooting them, two policemen died when the assailant switched the gun to his left hand and fired the fatal shots.

The two policemen, graduates of the McGinley Police Academy, upheld, to the very end, their high moral teachings. In a recent interview McGinley expressed his pride in the deceased graduates. "It is very difficult", said McGinley, "because of man's instinct for self-preservation, to train a policeman not to kill if his life is threatened. However, my academy stresses that, although any citizen has a moral right to protect himself, a policeman cannot exercise this right — because he is a policeman."

As I continued my interview we walked out into the street. The scene of the two policemen facing the gunman, his gun aimed and ready to cut them down in a flash of powder and lead, shot through my mind. I could not control myself! I yelled, "McGinley! What would you have done if you were in the same boat as those policemen?" . . . "Well, I'm not a policeman. I'd have . . ."

Segregation an American right

The Supreme Court ruling in the 1954 Brown decision did not constitutionally deny the principles of segregation. The ruling of the court was not one giving the negro the right to integrate but conversely pointed out the right of the white to associate. While this ruling seemingly has no difference the effects do. Unfortunately many courts and high government officials have interpreted the Supreme Court ruling to have denied the right to segregate. This is most unfortunate as it infringes upon one of our most cherished rights. The right to privacy is in principle given in the Bill of Rights.

The courts under their misguided interpretation have begun to infringe on the rights of cultural privacy of both the negro and the white. In Boston negro parents have boycotted schools with white teachers who were imported to the district to bring about integration. Some people have found the negro's recent demands for autonomy completely confusing in the light of the negro's demand for racial equality. The negro while desirous of racial equality in the economy does not want to do so at the expense of his own culture.

The first doctrines of Communism stipulate the equality of man, not only with respects to his biological and physiological make up but as well amongest the institutions of the society and his neighbors. We in America have developed our democratic institutions with the understanding that all men are equally created within the eyes of the state. We however, do not state but hold as a truth that man after his creation has within his own potential the power to alter the course of his existance. The state thus becomes obligated to act equally towards all of its citizens. While this is just, the government has taken to denying the citizen the right to act in accordance with the freedoms he is guaranteed under the Bill of Rights. A citizen of the state can no longer liquidate, acquire or hold property in the interest of the social contracts around him. Thus if an elderly couple which lives in a retirement village wishes to sell their house and a young troupe of high school graduates wants to buy the house they are forced to sell them the house, though they know they are not acting in the best interest of their neighbors, according to the present law of the land. This one of our basic rights to social contracts has been abrogated by a missinterpretation of the Supreme Court ruling.

Years 1870-1900 Not a Golden Age

(Note: In **The Amplifier** of Dec. 19, 1968, Lloyd Little wrote that the Americans "had a brief taste of freedom which no other people ever enjoyed — the period betwen 1870 and 1900." From his study of this priod in American history, Mr. Dwight Eck came to a rather different conclusion.)

by Dwight Eck

Freedom is the right and privilege to pursue one's own personal interests, with the ability to develop his full potential and capacity. Man has to have a feeling of involvement, or the right to become involved, in policies that could have a direct effect upon his personal life. A person's life should be lived according to his own free will and conscience, as long as it doesn't violate the rights and freedom of others in doing so.

Society, in the late nineteenth and early twentieth centuries, does not seem to have been the scene of grat individual freedom. Government, during this period, was not concerned with its individual members, but was serving only the needs of the growing industrial complex. Government policies, such as the Mcinley Tariff and the injunction used to break the Pullman strike, were catering to the needs of monopoly powers and vested money interests. People, during this period, enjoyed very little freedom bcause th government was full of corruption, and had very little public opinion contained in its policies.

Small businessmen, labor, and agricultural interests were alienated and oppressed by the government during this era. Laborers were crowded into city slums, and left with no help to alleviate the conditions of starvation and poverty found there. Small businesses were forced shut by monopoly powers, such as the Standard Oil Trust. People had no chance of making a decent living from agriculture with such practices as the high protective tariffs, low crop prices, and unfair railroad rates. Unions were organized, which, if supported by the government, could have given the workers a direct voice in their working conditions, but the government continually enforced measures to support management rather than the workers. People, such as the Jews, Negroes, poor whites, immigrants, and Catholics were living under constant discrimination. Election issues were clouded, and the votes of the people were taken away or purchasd by corrupt politicians.

Any person who feels that this period in history was our short era of freedom possesses a distorted view of a free society. This was a period of stagnation in our history, in which a common person had no chance of becoming involved with the policies of government or industry, and one in which people were oppressed and alienated by our government. According to Aldus Huxley, "Societies are composed of individuals and are good only in so far as they help individuals to realize their potentialities and lead to a happy and productive life."

In order to have true freedom, we have to have a world which is operated for people, not things. The real values must be placed on man and his potential to create a meaningful existence. Civil liberty is not true freedom, and in our present society, we enjoy much civil liberty but our lives are governed by false economic and social values which nullify our free will and our right to act according to our conscience. Modern man is totally alienated by big business, big society, and big government.

Guys and Gals well defined

by Cheri Norine

Exactly what is a boy? He is someone who can take a car apart, fix up anything that needs fixing, put it back together and have the engine purring like a kitten. But he can't understand why some living doll wants to dance all night instead of sitting through a whole afternoon of football on television.

A boy is someone who can tell the athletic greats of football, basketball, and baseball, also the names makes, and models of cars. But he can't remember what color dress his special date wore to the prom or the name of their favorite song.

A boy will be brave during a crisis, strong when his muscles are needed, and dynamic when the occasion arises; but he can become a stammering, bashful idiot when that special girl looks his way, lazy when his dad wants the lawn mowed, and uninterested if a subject bores him.

And now what is a girl? She is someone who can take two dozen bristly rollers, but them in her hair and sleep (?) on them all night. She can buy some material one week before a dance, cut and sew it together, and emerge that night of the dance looking like a dream; but she can't tell a spark plug from a carburetor and wonders why fellows want to spend their time fixing cars instead of riding in them.

She can list all the new records and recording artists, fashions and makeup, but not the positions of the basketball and football players. Now as for the color of a guard's eyes, this she will know.

A girl can be mysterious, bashful, coy, and a flirt when it seems necessary, weak and helpless if the right guy is near, and the all around outdoor American girl if need be. She can be studious and industrious if final tests are on, but mention a party and she's always around. She's strong and helpful if mom puts her foot down, and a daydreaming indoor girl if so inclined.

All in all, they are both indispensible and here to stay, so let's make the best of it.

M-Club Activities

The M-Club, under President Ron Deriana, has been busy this year. All the M-Club members, consisting of those boys who have earned a letter in any sport during the year, have all done much to make this club what it is today. The boys do such things as sell pop during the basketball and football games and are now selling Tech Booster stickers for $10.00 to help support the athletics at Tech.

Charley Army is the new club advisor, taking the position of Ray Braun, who has taken a new position at South Dakota State.

Also helping Ron were Vice-President John McEnaney and Sec.-Treas. Wally O'Connell. At a meeting last week, newly elected officers were chosen for next year. They are President, Rick Dale; Vice-President, Warren Bickford, and Sec.-Treas. Tom Jonas.

The Chess Club

by Cliff Hoshaw

One of the newest clubs on campus is the chess club. The club is less than ten years old, but no one knows the exact date of its formation. There is no mention of it in the Magma earlier than 1963, but we cannot be certain that it was not formed before then.

Only the late Adam J. Smith, holder of the Montana chess championship for several years, knows that answer. Professor Smith guided the chess club in its early years until his untimely death in traffic accident in 1966. After his death, Professor Young took over the reins of the growing club.

Dean Stolz remembers that in 1957, there was no official chess club. There were only a few professors playing chess in the Petroleum Building. The chess club grew out of a few students' interest in the game these professors played. This interest prompted them to form the chess club at some unknown date in the recent past.

Today some fifty to sixty students and professors play chess in the SUB. Many are chess club members and some are graduates of Butte High's chess club. As they come to Tech, they bring their interest in the game along wit hthem. Games of chess are becoming common sights in the SUB. In such a technological-minded college, the mental skill of a chess game is a boon. Now is the time to take part in the weekly Monday night meetings of the club and learn how to play this very useful game.

On campus disorders

by L. V. P.Raman

Morbid disorders are currently plaguing and rocking several universities. They are spreading fast like infection and wildfire. Some of the students' grievances seem to be legitimate; some of the demands are just. Any liberal-minded, progressive person can only be gratified at the growing awareness and concern on the part of students towards several of the social ills. These social ills, if allowed to persist, woud eventually demoralize and undermine the nation. They have to be faced and eliminated. Now the question arises: Why should such acts of vandalism be resorted to by students?

It is extremely distressing to see students deteriorate into a militant and intransigent mob. The violently disruptive acts assumed the proportions of a mutiny. Students who indulge in hooliganism and armed occupation of buildings only strengthen the very forces and values which they seek to oppose and eradicate. They should know that chaos and anarchy are not techniques by which to bring about reform. The most serious victim and casualty in such an event is freedom. Violent agitations and outright vandalism outrage the society and the "establishment" and serve to delay the very reforms, to accomplish which the original demonstrations were launched. This simple fact is being so blatantly ignored by the militant protesters. Their very impatience makes them irrational, intolerant and possibly insane. Coercion should not be rewarded. The reactionary bullies on the campuses should be cracked down upon. There can be no question of negotiations with the rowdies who tear down buildings, go about looting, forcibly evict deans from their offices and seize labs at gun point. Any move towards a compromise with these young savages amounts to a shameful surrender.

The college administration, however, should establish and maintain effective and meaningful channels of comunication through which students could air their grievances. The administration should be sympathetic, understanding and responsive so that the centers of learning become places where students, faculty and administration function in a well-coordinated manner as harmonious and purposeful communities. In spite of this, should disorders erupt on the campuses, severe disciplinary action must be taken against the punks. Capitulation, under any guise, could only encourage the subversive elements and make matters worse. Those authorities who capitulate are as guilty as the crimemongers and therefore should be impeached. As responsible individuals, we cannot sit back and witness the liquidation of the universities.

NOTICE OF REPUDIATION

I repudiate the **Amplifier.** Especially objectionable were the "cartoons" published over two of my last articles. I do not fully comprehend what is being said in these "cartoons," but I feel that I would disagree with their content were I able. The same may be said of the writings of Mr. Dewey. From henceforth, my writing efforts will be confined to publication in **The Objectivist,** a magazine published by Miss Ayn Rand in New York (should my writings be of sufficient quality and interest to readers of **The Objectivist).**

Signed,

Lloyd J. Little

Wesley Club

by True Trueax

This year the Wesley Club at Tech has been highly active. Tech students who are officers in this Methodist organization are: President Joyce Roberts, Vice President Rich Richards, Secretary Addrien LaPalm, Treasurer Sherrel Mueller.

Dick Dollar was sponsored at Tech by members of the club along with sensitivity training labs, and discussions on sex, death, and careers.

Some of the members are working with the Walkerville youth and their studies. On May 5th the club talked with a social worker.

Every other Monday night at 7:00 the Wesley Club meets in the SUB. All interested students are welcome to join.

Although there is no record of when this group was started, a few definitions as to what this group is and stands for, as presented by The Wesley Foundation may help you to understand the aims of the club better:

What Is Wesley Foundation?

Wesley Foundation is

—A seeking, studying student group not cowed by the old, unduly impressed with the new.

—not afraid to ask questions, and to probe for better answers.

—open to comment and formulations of truth from whatever source.

—desirous of making intellectual assent and profession of faith into overt, concrete, secular and humanizing action.

—a place for students to come to meet other serious-minded students . . . to have meaningful conversations . . . to search in small groups for better truths . . . to worship . . . to counsel with adults . . . to know relevant issues and make proper responses.

—the ministry of The United Methodist Church on the Tech campus.

Comments

by Lloyd J. Little

Now that we have all heard the cracker-barrel wisdom of Mr. Bowman (which consists of a long string of bromides and two-bit generalities), I thought I would counter-attack some of his collective denunciations which may or may not be aimed at me personally, but which were personally offensive.

A man of good will does not enter the intellectual market place by emptying gut-buckets in public. For example, the phrase — "for the benefit of those readers who are fed up with the garbage this paper often prints . . ." Such a collective denunciation (aimed at any man of self-esteem — only a coward or idiot would not be offended by such an irresponsible allegation) labels the the writer to be a rat scurrying for a hole under the cover of generalizations he does not wish to make clear — generalizations he hasn't the ability or integrity to ground in reality.

If a man does not agree with a statement made, he should at least have the courage to specify exactly that with which he does not agree (and why). From then on, it is a test of sheer rationality — summoning specific facts of reality with which to substantiate ones case, and presentinng them in a non-contradictory manner: free of wholesale generalities, pleas for faith, or arguments from brute force. If a man does not have the intellectual courage and ability to enter such a battle (on these terms) he should keep his mouth shut.

Incidentally, the "folksy wisdom" pandered by Mr. Bowman may be shot to pieces by any third-rank Aristotelian logician. His argument, in essence, reduces to the contemptible, self-declared contradiction — "I wish to state my conviction that people should not state convictions." (If people should not state convictions, Mr. Bowman, what gives you the authority to state your conviction?) I leave it to the reader to decide if there can be any valid development of a theme of this nature.

While attacking the allegations of Mr. Bowman, I have no intention of defending the efforts of other **Amplifier** writers (outside myself). The absense of any reply to Mr. Bowman (and similar pundits) from the rest of the **Amplifier** staff should give the reader a good idea of the degree to which they value their own efforts. In other words, a rational man defends only that of which he is proud. If a man fails to defend his own property, he is definitely not proud (and probably not rational.) What this implies regarding the individual's character (and the worth of his writing efforts), I leave to the reader to resolve.

Would the negative income tax program really be effective?

by George Rider

Although man has recently experienced rapid technological and economical progress, these economic gains have failed to solve the problems of poverty, crime, and chronic unemployment.

The poverty problem is a gigantic one which will not yield without enormous effort on our part. It has been estimated that over thirty million people do not have an income sufficient enough to provide an adequate living standard. It has also been reported that the present welfare programs and the present manpower work programs are making unsatisfactoy progress — they have failed to reach many of the people who need the help most and they have faild to provide incentive and better conditions to those people who are already on relief.

From this we as human individuals can see that now is the time to take the so-called "total approach." This approach must include both direct income assistance to those in need as well as measures to increase the employment of the disadvantaged.

Recently there has been three criteria set up to detrmin the potentialities of any program that might be offered.

These criteria are:

First — The plan offered must supply direct assistance to those who need it.

Second — The plan offered must provide employment incentives to those who are able to work.

Third — The plan offered must be relatively easier to administer.

The proposal that meets these requirements best is known as the negative income tax. Under this program a family with zero income would receive a basic allowance according to the size and composition of the family. When the family would begin to earn money, this basic allowance would be reduced by an off-setting tax, but not by corresponding amounts. Thus a family who had a member working would always be better off than a family who did not have a member working.

Under the present welfare program, however, persons on welfare generally lose a dollar in relief for every dollar earned. Consequently these people have no incentive what so ever to work for a living. Additionally the present day welfare recipient is usually reluctant to accept a job even though it may pay more than what he is getting on welfare. This is due to the mere fact that if he takes the job and looses it, it may take him many months to get back on relief. There are no such disincentives as this under the negative income tax program.

The negative income tax like the positive income tax would be on an advance basis. In other words a person who is employed and is eligible for the negative income tax, would receive a supplement added onto his paycheck just as we have money withheld under the positive income tax program. On the other hand the unemployed person would file advance estimates which he would later receive. Once a year all would file to make adjustments for the under or over payments. Thus by having these payments automatic, they would become a civil right insured by law, they would not have preference to any one individual over another, and by being administered in this manner, they would treat these people as responsible individuals rather than incompetant dependents of the state.

In conclusion we can see that the negative income tax program has great possibilities for the future. In fact, no other program has yet been suggested that will come close to the proposed negative income tax program.

Dear Editor:

One can appreciate the sense of wonder and of power generated by an introduction of philosophy and philosophical thought only by undergoing such an introduction. Such an experience usually results in the philosophical neophyte's pasionate embrace of one or the other system of philosophical thought as the only rational system.

In point of fact, anyone with more than a nodding acquaintance with logic, logical systems, and their limitations is aware of the fact that any system which purports to make statements relating to any sort of reality or "real world" is by its very nature not a logical system.

Any such system is of necessity based on certain assumptions, be they called "'self-evident facts," "axioms," etc.

The acceptance or rejection of any particular axiom schemum as pertaining or relating to reality is done on purely subjective grounds, and is done not by "logical process" but by faith, although the act of faith may be cloaked in such phrases as "we accept as self-evident," it is obvious that," etc.

It is therefore dangerous, from an intellectual standpoint, to characterize any philosophical system as "completely rational" be it objectivism, rationalism, hedonism, or what-have-you.

For further information I would refer the interested reader to

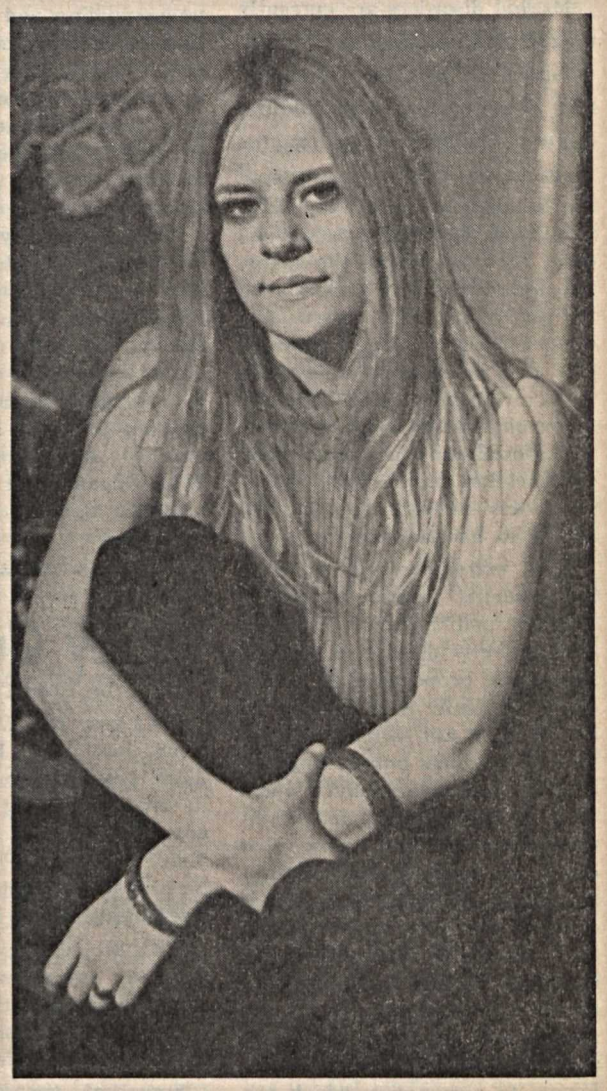
Stoll: Set Theory & Logic, Freeman 1963

Suppes: Introduction to Logic. Van Nostrand, 1957

Luce, Bush Gelarter: Handbook of Mathematical Psycology Vol. 1 Wiley, 1963

Alvin J. Nelson, Jr.
Mathematics

Amplifier May Feature Girl



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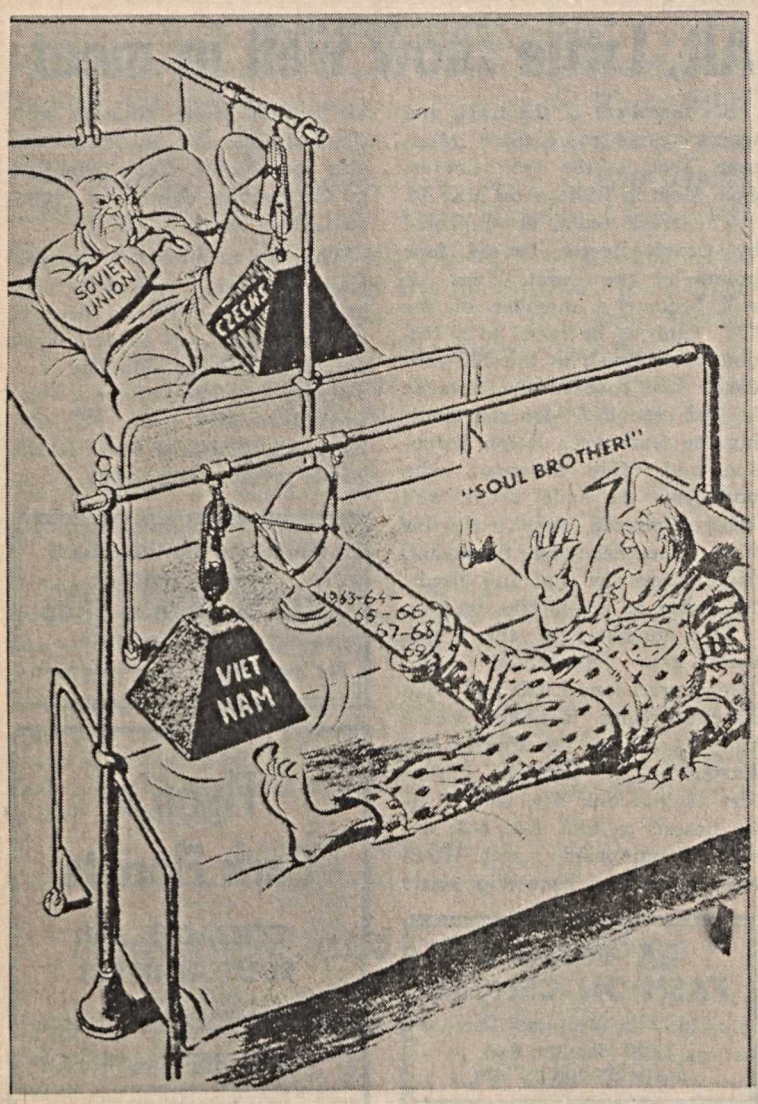
Lorraine Nygard

Culminating this year's series of Amplifier Feature Girls is Lorraine Nygard. Our blue eyed flax haired Feature Girl of Norwegian ancestry, the land of the Lapps and the midnight sun, promises you the sun and the pleasures that are summer. An adept equestrian Miss Nygard designs and makes her own clothes. As a former Tech coed, she regrets that, "most people at Tech do not express themselves and hence do not expand their thoughts."

★ ★ ★



From "Joaquin de Alba Views Violence in America (De Tocqueville's America Revisited:)" A graphic commentary by Joaquin de Alba. Published by Acropolis Books, Washington, D. C. 20009 (Cloth $6.95; Paper $3.95) Copyright 1969 by de Alba.

Mud and Muck

from The Muckers

Have you been feeling run down and out of sorts lately? For a quick pepper-up-er, attend a Student Council meeting for the invigorating discussions held there about the paper, among other things!

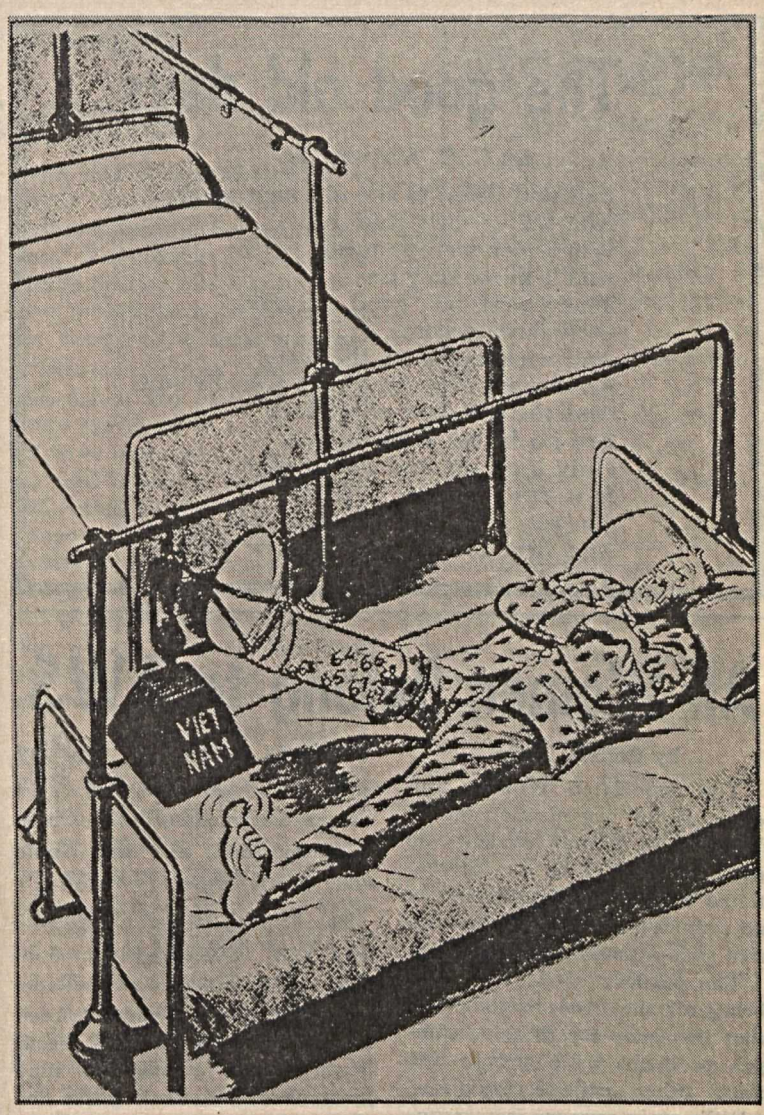
Student unrest has finally arrived at Tech or seemingly so as it comes to light that many students are teaching classes themselves due to the absence of certain faculty members. Saturday mornings are typical of this.

The Golden Rule Store recently had its grand opening here in Butte. This occasion was accented by an overwhelming sale of garbage cans, among other things. Could this be a reflection on Butte I see?

Tech students may not be rioting yet, but Mrs. Alt would vouch that they sure do make a lot of noise in the wee hours of the morning, especially on speech trips.

Gee, come to think of it, did any of you notice how long it took our trusty engineers to fix the SUB clock? More than this, how about those axel-breaking holes just behind the statue?

If an unusual amount of guys smiled at you during our M Day celebration girls, don't get excited, they were just campaigning.



From "Joaquin de Alba Views Violence in America (De Tocqueville's America Revisited:)" A graphic commentary by Joaquin de Alba. Published by Acropolis Books, Washington, D. C. 20009 (Cloth $6.95; Paper $3.95) Copyright 1969 by de Alba.

Why not move Tech to Bozeman???

by Larry C. Hoffman

Before you read and farther, I would like to make clear that I am violently and rabidly opposed to moving this school to Bozeman under any circumstances. The purpose of this article is to try and point out how the opportunities offered by our location are being wasted. From this viewpoint, the school might as well be in Bozeman. Since I have been most closely associated with the mining department, most of my points will be in this area, but the people in other departments can no doubt come up with points of their own.

As a freshman, I took almost no course work directly related to my field. If I had had no definite plan to go into mining engineering, there was no incentive or promotion to do so by the department. Like nearly all other departments, there was no interest in underclassmn as potential department students. It was all a sheer coincidence if a student were to choose mining as a curriculum. In engineering graphics no effort was made to acquaint a student with the machinery of the industry, either by special drawing problems or a field trip to the Anaconda Company design department. None of the potentially available people were asked to give talks on design and drafting problems. Why be in Butte?

In the first introductory mining course lab, we spent one whole afternoon taking a rock drill apart and calculating the theoretical horsepower. We did not go to the ACM rock drill repair shop, the finest in the country and see all the different types of drills disassembled and being repaired. We had no chance to find out the major causes of breakdowns, or how long a drill lasts, or any of a hundred other pieces of information that an experienced drill runner or mechanic could have told us if there had been a field trip to the "fabulous natural industrial laboratory that is Butte" that we hear so much about as a major reason not to move the school to Bozeman. Why be in Butte? In the study of pumping we saw only the main Kelly pumps, we had no guest speaker on the problems encountered installing those pumps, or maintaining the system. We did not go to the mines to see blasting agents or techniques, ore handling methods, ground support problems, mine management methods, instrumentation design, etc., etc., etc. As a senior I finally went to the famous ACM geology department for a couple of hours and spent several lab periods mapping underground and in the pit. But where was the tour through the mines to show us the Butte geology as a tangible thing instead of a bunch of colored lines on a two dimensional piece of paper or chalk board. Why be in Butte? How come in Electric Machines we didn't hear a word from, or see any of, the ACM electrical department? How come a permanent rock mechanics study area has never been built and maintained in one of the deep mines? Professor Finch tried to put in a ventilation lab program but was stopped by the strike. Why hadn't it been established years ago? In thermodynamics how come we never saw any of the different varieties of heat exchangers on the hill and under it? Why be in Butte?

Needless to say, further examples are almost endless. Does it make sense that this schol should be so upset over not having a first place football team when we are wasting our most valuable asset, indeed ignoring it? Once upon a time nearly every student worked underground or in one of the Butte related plants. This gave him the practical background that, in combination with a first class technical training, made him one of the most sought after engineers. Now there are no jobs in the mines and it is not only possible, but probable that there will be mining graduates who have no idea what mining is really like. Last year a Junior in mining engineering switched curriculums after his first trip to an operating mine! Three years without knowing what he was getting into! I know several upperclass mining engineers who have looked at drawings of machinery in class for two years and been shocked when they eventually saw the machinery in life. Comments range from "So that's what that thing looked like," to "Well why in the hell didn't we get to look at this sooner. Now I can understand how it works!"

I won't waste your time with my ravings ony longer. I can only hope that the next time there is a move on to transfer Tech to Bozeman someone will dig up this article and ask if anything has been done to utilize the opportunity of Butte. And much, much more, I hope that the staff can point to an active and growing program to use the classroom that is Butte. God help Montana Tech if they can't!

J. P. stands for the Junior Prom. Take your girl to it if for nothing else but to step on her toes! This little endearment should be used if she has made a practice of throwing sacks, orange peels, carrots, and other miscellaneous objects at you or made a practice of spilling coffee on your pants daily, burning the seat of your car, or most dastardly, shut off your supply—of beer that is.

Instead of shouting "Who's got the action?," the question seems to be, "Who's got the beer?". Mike and Claude you seem to be smiling.

The Living Dialectic Truth

We, the humanity of tomorrow ,today's youth stand before you, not in judgment or in great expectation. The destruction of the race of man rest in our hands we have rejected the hand of providence which have been delt, and have asked the unanswerable question. If we cannot find the answer to the query now, surely as you and I are alive today, the race of man will be gone tomorrow. If we cannot comprehend and grasp the hate and love of man for his fellow being, if we are not willing to give of ourselves for the other, to sacrifice our worldly posessions for our brethren, then there will be no tomorrow as we know it today. We reject you (the establishment) entirely. The lie must either become a truth or the knowledge as we know it now must cease. The die has been cast, your reaction to our being will determine the existence of man for generations to come.

The lie lives and is perpetuated in our very essence. Some seek the divine Creator of us all in the acknowledgment of the Death of God. The gnosis is buried in the universities of its birth, and we burn and raze our homes praying for the damnation of mankind. We proclaim free love and disinbowl the harlot's daughter.

The good old days

By C. C. Hoshaw, Jr.

I sit and listen to the old men speak
And tell of days gone by,
When men were so meek,
And I know they lie.
There were no "good old days,"
Only days to come,
And a changing of the ways.
An eternal strife to gain a worldly sum
And the old days of warfare
Are no better than today's.
Only kindness and loving care
Is worth the price it pays.
Ah, yes, gone are the "good old days"
And here to stay are the new ways.

All Women Belong to AWS

by Colleen Caron

The Associated Women Students is an organization which includes all women students on campus. A.W.S. is an international organization comprised of all campuses with at least wenty-five girls attending classes there.

The purpose of A.W.S. is to bring all the coeds together so that they may try to solve campus problems as a group. On most other college campuses, AWS's main purpose is to regulate dorm hours. Since Tech has no dorm for women, A.W.S.'s main function is to sponsor activities and to promote Montana Tech.

A.W.S. officers are: President (elected in the spring for the following year), Vice-President, Secretary, and three delegates, all five of whom are elected during the opening two weeks of school in the fall. The president must be an upperclassman; the vice-president is a freshman; the secretary is an upperclassman, and the delegates may be either. These officers must all maintain a 2.00 average.

Members of A.W.S. sponsor and work on many activities. Some of these are: 1) Christmas formal, 2) the freshman orientation party, 3) the freshman Christmas party, 4) working with Circle K, for the High School College days, the Circle K Convention, and the Home and Sports Show, ') "Mother's Tea," 6) and, finally, "Woman's Day Tea," dedicated this year to Miss Kay Lear, who will be graduating from Montana Tech in January, 1970, and Mrs. Vesta Scott, who is retiring after nine years of service. During this final tea, the new president will be named, and all women students who have been awarded scholarships or honors are given flowers.

S.E.G. Elects

The Montana Tech student chapter of the Society of Exploration Geophysicists (SEG) elected new officers at a recent meeting. The new oficers are Fred Hoffman, President; Tom Jonas, Vice-President; and Eric Johnson, Secretary-Treasurer.

This chapter of SEG was chartered at Montana Tech last fall. During the school year, lectures on earth science topics are sponsored. Membership is open to any student interested in earth science problems.

Mountaineer Club activities

The Mountaineer Club, under club advisor, Dr. Goebel, was formed in the fall of 1966 to promote safe mountaineering at Montana Tech for students and faculty.

The club takes trips to embark on journeys during different seasons of the year. Summer trips are usually taken to Grand Teton National Park, Wyoming and Glacier National Park, Montana. Winter trips are taken to Bitterroot, Glacier National Park and Bridger Bowl in Bozeman. The spring trip this year was to Mount Haggin. Those attending were Bob Chebul, Kay Lear, Clara Progrega, Dr. Goebel, Bryon Maxwell, Pat Whalen, Scott Hulse, Mike Whitmore, and Bruce and Nancy Dreher. Bruce is the assistant ranger at Boulder.

Gumperson's Law—The probability of a given event occurring is inversely proportional to its desirability.

P.E. Program

With the physical education program almost over for this school year, plans are being made for next years program.

Mrs. Sarsfield says she plans to have the girls do a variety of things. She would like them to get some marching done for a drill team. In the fall semester Mrs. Sarsfield will have the girls playing volleyball indoors and if the weather is good she will teach them speedball, which is a combination of basketball and soccer played on a soccer field.

In the spring semester the girls will take to tennis, basketball and softball, she said. She would also like to give them exercises to keep slim by.

The boys will also do many different things, according to the athletic director, Mr. Armey. Touch football, soccer, softball, tennis, golf and swimming will be on the agenda for the fall semester. The spring semester will see a primary physical education examination along with basketball, volleyball and softball.

This year Mr. Armey's classes have played soccer, basketball, volleyball, tennis and golf.

Alt, Little show well in meet

Six members of the track and tennis teams represented Montana Tech in the 1969 Conference Meet in Billings on May 16.

The track team, accompanied by Coach Lester, scored four points in the event. Lee Alt will become a member of the "M" Club as he raced to a second place finish in the 100-yard dash. Lee covered the distance in 10.2 seconds. Also representing the team were Ralph Sorenson and Mike Bowman, who both ran the mile event, and Mike Thurman, who made his first appearance on the team. Mike threw the shot and discus, but failed to get in the top five.

Two members of the tennis team also represented Tech. They were Lloyd Little and Mike Parent. Both netmen were knocked out of the tourney by Eastern's John Gannon. Parent lost to him 6-0; 6-4, while Little bowed to him 1-6; 6-3; 6-4 in the championship match. However, Montana Tech did settle for second place. Gannon won the championship in both doubles and singles. Tech defaulted in the doubles due to an injury on Little's hand.

The five members of the golf teams who had qualified for play in this meet didn't go because the golf meet was to be played on the following Monday and Tuesday and none of the golfers wanted to play then. Bill Osborne shot the low score in the 9-hole tryouts with a 40.

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Opinions expressed are those of the editor and not necessarily those of the college or student body unless the article stipulates so. The editor reserves the right to exclude all material not congineal to his policy or ideology.

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STANDARD BUTTE

Humanities and Social Studies

by Jane Rohret

Tech has had quite a broad variety of Humanities and Social Science courses in the past, considering that no degrees have yet been offered in these departments. It may be possible soon for students to obtain degrees in English or History if the required authorization is acquired.

Even if a student does not obtain a humanities degree at Tech, he can pick up an excellent basis and many requirements for a degree at another school in the Montana State School System. In the past, Tech's Humanities and Social Sciences Department has offered numerous courses in Economics, English, Foreign Languages, Geography, International Relations, Literature, Public Speaking, Drama, Debate, Music, Philosophy, Psychology, and Sociology. Some Humanities and Social Science credits are requisites for professional degrees, others are optional, electives, or may be used toward degrees at other schools.

The opportunities for a graduate major in humanities are various and almost limitless, and are quite self-evident in the subjects listed.

What should a bride wear?

Fashion's corner

by True Trueax

June seems to be the favorite month for weddings — and why not? In Roman mythology, June belonged to Juno who was the goddess of women. Juno blessed weddings that took place during her month of June.

Wedding gowns are, to this day, most often white or off-white. Perhaps this old verse had something to do with forming this age — old tradition:

Married in white,
you have chosen right;
Married in red,
you'd better be dead;
Married in yellow,
ashamed of the fellow;
Married in blue,
your lover is true;
Married in green,
ashamed to be seen;
Married in black,
you'll ride in the back;
Married in pearl,
you'll live in a whirl;
Married in pink,
your spirits will sink;
Married in brown,
you'll live out of town.

Orange blossoms have been worn by brides from time immemorial. The orange tree is an evergreen and is believed to stand for a couple's everlasting love. Orientals have always considered orange blossoms lucky because the orange tree bears blossoms and fruit at the same time.

Wedding veils have many origins. The most common, perhaps, is that which comes from the Far East custom of Pardah in which women were entirely covered, except for their eyes, until their wedding day. Wearing wedding veils may also be a left-over from the bridal canopy which was held over the heads of the bride and groom to protect them from the Evil Eye.

Have you ever noticed the knots tied in the ribbons on a bride's bouquet: Since wishes were supposed to be tied with a knot, and since the bride's friends wished her many, many good wishes, thus the ribbons of her bouquet are many-knotted!

The lovers' knot stems from customs of the remotest times, when the tying of a knot stood for love and duty. The Dutch are said to be the first who actually tied a knot in a cord or ribbon as a symbol of unity or oneness. This custom spread through Holland to England, and is responsible for the expression we use today — "the knot was tied," meaning the marriage has taken place.

The bride's bouquet plays a superstitious role in the life of the girl who catches it after the ceremony. This is very common practice among today's brides. But we forget two things — to make a wish for the bride's good fortune, and to untie one of the knots in the ribbon. The girl who catches the bride's bouquet and does these two things, will be the next one in the group to be married.

"Thrice a bridesmaid, Never a bride" is an expression we are all familiar with. It related to the saying, "never two without three." When these superstitions really ruled people's behavior, it was thought that the jinx could be broken by being a bridesmaid seven times. Since the moon changed every seven days, so would the luck of the seven-times bridesmaids!

The attendants at a wedding, the bridesmaids, best man, maid of honor, etc., stemmed from the old Roman law requiring that ten witnesses be present at a a marriage ceremony. It was their sole purpose to ward off any bad or jealous demons. The bridesmaids were required to dress like the bride and the groomsmen like the groom to confuse the evil spirits who were envious of such happiness, that they would not know which two were being married.

The best man had a real purpose at one time, other than honoring the groom with his presence. At that time, the groom captured his bride and it was the job of the best man to beat off protesting relatives while the young couple made their gateway!

Interview

by John McGinley

The following is an interview with Niles Bauer and Gary Fisher of the "Back Page." Niles attends Montana Tech and is a member in good standing in "The American Association of Long-Hair Pinkos.

How long has the Back Page been together?

Niles: We've been together in present form for about one year.

Do you plan on staying together?

Fisher: We'd like to stay together for at least another four years, but the Draft might have something to say about that.

Have you ever thought of leaving Montana?

Niles: We're supposed to have a tour this summer.

Fisher: We're going to tour some western states but we're not sure which ones. We'll find out more about it this month.

Have you ever thought of picking up a girl singer?

Niles: We'd like to but we haven't found anybody good enough. We were looking for someone who's had experience singing in a group.

One of the most common complaints about your group is that you're great copiers but that you lack originality. How much of your own stuff do you do?

Niles: We've written two songs of our own.

Fisher: We've also decided to stop being so commercial, and start doing our own arrangements of songs.

Your people have a reputation for being somewhat straight when it comes to drugs. How do you fell about drugs?

Niles: Everyone has a bag, but we don't feel we need drugs — we're happy enough.

Fisher: Right.

As much as I hate to bring up the issue — how real is your hair?

Fisher: At first it was a commercial thing, but ever since I've been wearing it long it's become a pretty natural thing.

Niles: I like hair.

Does anyone in the group write or compose exceptionally well?

Niles: It's really a group effort. Everybody contributes when it comes to writing songs.

Last question: Do you enjoy playing here? What is your opinion about Butte audiences?

Fisher: There's no response at all from the people in Butte. "Genesis" was one of the best things that ever hit this town, but the people just didn't appreciate them.

Niles: There is a small group of people here in Butte that are able to appreciate music and do respond favorably to good groups.

Fisher: On the whole, people here will prejudge a group on appearance without even trying to find out how good they sound.

Tech's football recruiting

by Mike Parent

Six top-notch high school athletes have accepted athletic grants-in-aid to play football this fall at Montana Tech, announced Charley Armey, head football coach.

They are Stan Mayra, Butte; Nick Obstar, Great Falls; R. J. Spomer, Belgrade; Kermit Behnke, Great Falls; Jon Chapman, Gardiner, and Greg Hahn, Helena.

Mayra, a 6-2, 225 pound tackle, has played four years of football at Christian Brothers ' High School and also has participated in basketball and track.

Obstar, is a 5-10, 185 pound fullback from C. M. Russell, where he lettered for three years.

Spomer, is a 6-3, 210 pound defensive end. He played on both offensive and defensive units during four years of varsity in high school.

Behnke, a 5-11, 185 pound running back from Great Falls High School was Class AA first team All-State selection at running back and first team selection for the East-West Game. Last year he rushed for ovr 200 yards against Butte High.

Chapman, 6-4, 215 pound defensive end from Gardiner High School, played two years on the All-Conference team and played four years of varsity basketball with two years on the All-Conference basketball team.

Hahn is a 6-2, 205 pound linebacker from Helena Central High School, where he played for three years.

Other players who will attend Montana Tech in the fall will be announced later, according to Armey.

Spring intrasquad scrimmage

by Mike Parent

Montana Tech's football squad played an offensive-defensive scrimmage Saturday night, May 10 in Alumni Coliseum.

The defense outscored the offense 21-12 in the 40-minute contest. The game was the first under the new lighting system.

A special scoring system was used for this game since the Orediggers pitted the first string defense against the offense.

The offense picked up 512-yards, but the defense grabbed three fumbles, and a pass interception and held the offense to a fourth down punt situation seven times.

Don Heater, 5'2", 190 pound running back from Thompson Falls, highlighted the intrasquad scrimmage with a 73-yard run in the first quarter.

According to Head Coach Charley Armey, "Heater showed remarkable development throughout spring practice. His power running and broken-field running gives Montana Tech the most thrilling ballplayer in years. He is not only a spectacular gridiron player but also an outstanding student."

A 14-yard pass to running back Lonnie Andrews from Warren Bickford was the other score by the offense.

The game's defensive coach was Dan Murja and the offensive coach was Wayne Paffhausen.

The Anderson Carlisle Society

by Kent Bowman

The Anderson-Carlisle Society or more appropriately the Anderson-Carlisle Technical Society, was named for two of Montana Tech's students who lost their lives in the service during the first World War. It was started in 1922 and 1935 became the first affiliated society to qualify as a student chapter of A.I.M.E.

The society consists of three different branches. The branch of students interested in mining, the branch interested in metallurgy and those interested in ptroleum. Each branch takes its turn in arranging one of a series of technical lectures. All members attend the lectures no matter what subject it is on.

The speakers at these lectures are experienced technical men who are visiting the Butte area.

Western's Track Meet

by Mike Parent

Tech competed in the Western Invitational track meet in Dillon last May 2. Coach Tom Lester was "pretty happy with the boys' performance. I thought they were working real hard." Lester continued, "They really give it the best they've got."

In Saturday's contest, Lee Staiger, Butte, placed third in the pole vault; third in the 220, ftourth in the 100-yard dash; Lee Alt, Butte, second in the 100-yard dash; Mike Bowman, Butte, third in the mile; Ralph Sorenson, Butte, second in the mile and third in the 880 .

The final meet for the Oredigger track team will be in Billings on May 16 and 17 for the Conference meet.

Mines Review

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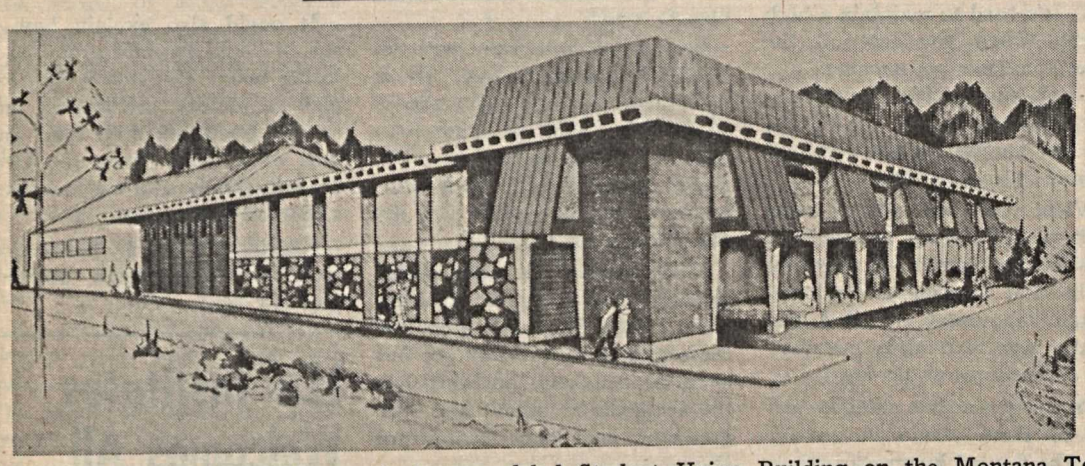


ARCHITECT'S DRAWING — of the remodeled Student Union Building on the Montana Tech campus shows the planned finished building. The building will have 28,000 square feet of floor space when completed and will cost an estimated $737,000. The addition to the building was designed by the architectural firm of Charles Kestle and associates of Butte.

Construction to begin next fall on SUB

An addition to the Student Union Building at Montana Tech received approval from the students in an election Tuesday.

About 60 per cent of the student body voted 341-51 in favor of construction. According to Victor Burt, Montana Tech business manager, building possibly may begin this fall.

Architect Charles A. Kestle says the addition, which will include food service facilities, will provide enough dining space to seat 240 persons and up to 400 on a semi-staggered basis. About 225 seats will be availabel for students dining on a cash basis, that is those who do not make regular use of the food service.

A complete kitchen facility will be constructed, also a small coffee shop for after-hour use and vacations, and three meeting rooms which will be suitable for dining.

A book store of about 3,200 square feet is included in the plans, as is a new game and recreation area and expanded student office space.

With the new addition, the Student Union will have adequate equipment and furnishings to handle an enrollment of up to 1,000 students.

Montana Tech Seniors

Mr. Robert Ramsey, a resident of Butte, will receive his Master of Science Degree in Mineral Dressing Engineering this spring. In his years at Tech Mr. Ramsey was a member of Theta Tau and A.I.M.E. His thesis concerns research done on a project contracted with White Pine Copper Company and is entitled, "The Distabliziation of Chailcocite Dispersions Using Aluminum and Iron (III) Salts". After graduation, he will work at Kennecott in Salt Lake.

Mr. James Mischot, a resident of Butte, will receive his Bachelor of Science Degree in Mineral Dressing Engineering this spring. He has been an active member of the student body in his years at Tech and was appointed delegate to the Dean's Discinary Commission. He has been a member of M-Club, A.I.M.E., a Regent of Theta Tau, and he was on the football team for two years. Mr. Mischkot's thesis is entitled, "Coagulation of Fine Particulate Chalococite". After graduation he will work at the Alcoa Company in Washington.

Mr. Bruce Wright, of Darby, Montana, will receive his Bachelor of Science Degree in Mineral Dressing Engineering this spring. While at Tech he was a member of Sigma Rho Fraternity and AIME. Mr. Wright's thesis is entitled, "A Study of the Surface Oxidation of Chalocite". After graduation he will be employed at tthe Duval Company in Tucson, Arizona.

Mr. Brian Raymond of Blairmore, Alberta, Canada, completed work at Tech last January when he received his Master of Science Degree in Mineral Dressing Engineering. His thesis is entitled, "Clay Mineral Concentration in Tulings of Great Canadian Oil Sands". Mr. Raymond is presently employed at Hinton, Alberta, Canada with a division of Consolidation Coal Company.

Bill Daily will graduate this June from Tech with a B.S. in Petroleum Engineering. Bill attended Carroll College for one year before coming to Montana Tech. He has won a Montana Tech Honor Scholarship, an Advanced Fee Scholarship, a Chevron Scholarship, several grants; has been a member of AIME, Anderson Carlisle Society, Student Council, M-Club President; played football and basketball and directed intramural sports. Bill has accepted a position with Sinclair Oil in Casper, Wyoming.

Mike Dewey came to us from North Carolina as a transfer student from Emory University in Atlanta Georgia. After graduating in June with degrees in Mining and Geological Engineering, Mike plans to go to work in Jefferson City, Tennessee for the New Jersey Zinc Co. While at Emory University he joined the Fraternity of Phi Gamma Delta and served as one of it's officers. Mike also was a member of the Intercollegiate Council and the Bench and Bar. He has been equally active here at Tech having served as President of the Mineral Club and the Camera Club, as Secretary of the International Club and is a member of thetAnderson Carlisle Society and the Wesley Club. Mike also did a fine job as editor of the Amplifier.

John Fargher will graduate in June, 1969, with a Bachelor's Degree in Engineering Science. During his college career, John was a mmbr of Sigma Rho and SAE. He was on the Honor Roll for three semesters, and received a Butte Rotary Club Scholarship and a Fees Scholarship. He plans to work toward his Master's Degree.

More Seniors

John W. Blumer came to Tech from Harlowton in 1964 and now he is going to graduate in June with a B.S. in Geological Engineering. During his stay at Tech he was active as President of the Mineral Club, Vive President of the Drama Club and captain of the football team, all conference in 67. John also acted as Vice President of the Senior Class and won the Amex summer field camp scholarship in 1968. Best of luck to John.

Gary Dhal originally hailing from Superior, Montana, came to Tech in 1964 and in June will leave with a degree in Geological Engineering. Some of Gary's achievements are: President of the Student Chapter of the A.I.M.E. in 67-68. He was named in Who's Who in American Colleges and Universities in 68-69. Gary served as the Vice President of the Junior class in 66-67. He was a member of the Copper Guards. He was also captain of the football team in 68-69. Congratulations, Gary.

George Phelps, presently a graduate student in Geology, is a native of Ashville, North Carolina. During his years at Montana Tech he was an active member of A.I.M.E., the Mineral Club, Sigma Rho. He was the recipient of the Chester Steele Award. He received his Bachelor of Science degree in 1966 from Montana School of Mines. He doesn't know yet where he will be working.

Henry G. McClernan will receive his Master of Science degree as a Geological Engineer. He is presently working for the Montana Bureau of Mines and Geology. He was an active member of A.I.M.E., Sigma Rho and the Mineral Club. He received his Bachelor of Science degree in 1967.

David Wolf received his Masters Degree in Geology last February. He received his Bachelor of Science Degree from the University of Wisconsin in 1966. David is originally from Pittsburg, Pennsylvania. He is presently employed at the D. A. Davidson stock exchange.

Ernest W. Bond will be graduating with a bachelor's degree in Geological Engineering, and is going to work as a hydrologist for the Montana Bureau of Mines and Geology in Butte. He served one year as vice-president of the mining section of the Anderson Carlisle Society, (AIME). Bond's extra curricular activities include instructing American Red Cross first aid and belonging to the Z-T Ski Patrol.

John Harvey will graduate from Montana Tech in June, 1969, with a Bachelor's Degree in Engineering Science. He was a member of AIME and Sigma Rho. Active in sports, John participated in football, basketball, and volleyball. He was also a justice on the Student Council.

John M. Arne, a June graduate from Montana Tech, is from Klamath Falls, Oregon. He started at Tech in 1962 and was in the U. S. Army from 1966 to 1968. John will graduate this June in Mining Engineering. While at Tech John was a member of the Theta Tau Fraternity and the A.I.M.E. He has accepted a job with the American Smelting and Refining Company, Tucson, Arizona.

John M. Badovonic is a native of Butte. He resides at 1042½ Nevada Street. John attended the University of San Francisco from 1959 to 1960 and started at Tech in 1960. He attended Tech until January of 1961 and then in August of 1961 he entered the Army and was released in 1964 carrying the rank of Captain. John returned to Tech in 1965 and will be graduating in Mining Engineering this June. While at Tech, John received the Kenneth Christie Honor Award in 1967. He was in A.I.M.E. and A.S.T.M. He worked full time as a Deputy Sheriff for Silver Bow County. He had not signed with anyone for a job at the time this article was written.

William H. Barnes is from Helowna, B.C., Canada. He was in the Canadian Army from 1961 to 1964 when he entered Mount Royal College, Alberta. He entered Tech in 1967 where he will graduate in Mining Engineering in June. While at Tech, he was an A.I.M.E. member and was chosen as Who's Who. While in Canada, he was secretary of the Circle K. He had not signed for a job when this article was written.

Jim Rose will return to Canada to begin to work upon graduating this spring. He will accep a position with the Northern Construction Company in Vancouver. Jim will receive a degree in Mining Engineering. He has served as treasurer and corresponding secretary for Sigma Rho Fraternity and is a student member of the A.I.M.E.

Claude Huber hopes to work with the open pit in Butte. He has accepted an offer from Minerals Incorporated of Salt Lake. Claude has been a member of the Student Council and of the Theta Tau Fraternity. He has served as chairman of the Appropriations Committee and as Secretary to the Anderson Carlisle Society. He is the recepient of many awards and scholastic honors.

Joe Koniki came to Tech in 1964 from Steubenville, Ohio. In the five years he was here, Joe was President of the Sophomore Class, President of the Drama Club (2-years), a member of AIME, the "M" Club, Mineral Club, Varsity Football and Baseball, holder of the AIME scholarship and Sports Editor of the Magma. Joe will work for Union Oil, as a petroleum engineer.

Montana School of Mines: First Victory in Nine Years—It's the Spirit That Counts

Gee, Coach, We've Got to Win a Game

by George McVey

A tired but happy Montana School of Mines football team trudged off the field with a victory under its belt in 1953.

Nine years and 44 games were to march wearily by before the Orediggers, as the team is known in the Montana Collegiate Conference, were to win again.

In the passing years the team and Coach Ed Simonich, former Notre Dame all-American, became famous in defeat. They are the no-win champions of the world.

When at last victory came, on a recent Saturday, Nov. 4, in a game against the Havre Northern Lights, an education school, the biggest crowd ever to watch a Mines School game turned out at Naranche Memorial Stadium in Butte.

The players, including Mohammed-Moshin, a 112-pounder from Kuwait, Arabia, who occupied a place on the bench "just to make it look bigger," carried Coach Simonich off the field in triumph.

A spectator was heard to remark ruefully: "In any other school he would have been hanged in effigy and fired years ago."

But they play the game differently at Montana Scool of Mines.

"We do not believe in either recruiting or subsidizing athletes," explained Mines School President Dr. E. G. Koch, who earned his Ph. D. in chemistry at the University of Illinois. "The athletic activity which is undertaken on this campus is pursued by those who have a sincere interest in sports as amateurs, not as professionals. Our boys play football, basketball and other sports because they are sincerely interested in these as sports—not bcause they have been recruited and subsidized to participate."

Coach Simonich had the habit of winning, too. Before he took over at Montana Mines in 1957. At Notre Dame, where he lettered three years, he scored the lone touchdown as the Irish defeated Army 7-0 at Yankee Stadium in 1937.

As coach at Carroll College in Helena, he won two Montana Collegiate Conference championships. One of his outstanding players at Carroll was the recently consecrated Bishop of the Diocese of Helena, the Most Rev. Raymond G. Hunthausen. When Carroll dropped football during World War II, Simonich took over as coach of Central High in Butte. He won one state championship in three years.

Simonich also put in one season with the Chicago Bears where he won the reputation of being a 60-minute man.

So it isn't that Coach Simonich doesn't have the urge to win.

He has another explanation: "Some days we may have more coaches out than players." And then he went on: "Lots of our players never played high school football. They feel they have a chance to play here, so they come out. And I'm glad to get many of them. Some of them turn out to be pretty good. They have real spirit."

Coach Simonich also explained that classrooms and laboratory work interferes with football all season.

"They've got to maintain a strict C average or lose their eligibility," said the coach. "And they can't play when they're on probation. The fellows work hard and get into pretty good shape. Only they're liable to miss so many practice sessions they're not in top shape on Saturday.

"There is no pressure here to win. We've got the world's greatest alumni. But I like to win. It's hard to maintain a high morale when you lose all the time; somehow we manage."

Coach Simonich's complimentary remarks about the Mines School alumni might be explained in another way.

When the old grads come back — often from the far corners of the world — they are likely first to drop in at a research laboratory to find out what's new in mining, metallurgy, engineering or geology.

Probably the last thing to occur to them would be to ask how the footbal lteam was doing.

When Gus H. Goudarzi, M.S. Geology, 1944, dropped in recently he perhaps unconsciously gave the institution a new slogan. It had not one thing to do with football.

"If you want to see the world," he said, "It's not always necessary to join the Navy. A degree from the Montana School of Mines will serve the purpose just as well."

Goudarzi is associated with the U. S. Geological Survey. He is equally at home on the shores of Tripoli, Ghana or Saudi Arabia, or Butte, which he calls home. Sometimes his own family does not see him for six months at a time.

Many another Montana Mines graduate has a similar history. Even Coach Simonich, who tips the scales at 250 pounds but but looks as trim as a halfback, has the academic air about him. He graduated cum laude from Notre Dame.

With only a few more than 400 enrolled, the classes are so small that the professors make it a habit to give individual attention.

This might explain how it is that a student choose to skip football, rather than a class or a laboratory session. And most assuredly it explains why Mines graduates are in demand all over the world.

It could also explain how a school could become proud of a losing team. But it wouldn't explain a victory celebration that rocked good old mile high and mile deep Butte when the Orediggers finally at long last won a football game.

Reprinted with permission from the **Spokesman Review**, Nov. 18, 1962.

The Story of the Montana College of Jock Sciences and Footballogy

by L. C. Hoffman

Once upon a time, not so long ago, there was a small but highly respected minerals school that a football team. The coach of this team was a very famous football player and instilled all the best of the qualities of sportsmanship into his players. Win, lose, or draw, it was how you played the game that counted. And for nine long years they lost every game that they played. But they couldn't help it. They were in school to become the finest engineers in the world and only played football because they liked to. Many times, the coach, Big Ed, had to fill in as a lineman at scrimmages because too many of his players were delayed by late lab sessions, or on a field trip, or had an exam to study for. And the school loved their coach and team, they wauld have crawled through a six-inch pipe filled with broken glass and led to - - , if it would have helped the team.

Finally, after 42 consecutive lost games, this team won, and Butte went wild. All of a sudden the nine years didn't seem nearly as long, and a lot of work was a little easier to bear. In addition, there were two N.A.I.A. All-American honorable mention players from the Mines, as the school was then called, two All-Conference first team selections, and the All-Conference honorable mention as the Most Valuable Player. And how much did it cost The Mines to recruit all this talent? Not one thin dime kiddies, not one thin dime.

One sad day, Big Ed died, leaving a very sad and grateful school to fend for itself. And the Baddies took over. They changed the name. They lowered the course requirements. They decided that the school had to have a big athletic program to be famous and get lots of students. They hired not one but two coaches from North Dakota, and you know what that meant. Pretty soon they were trying to change the school colors to North Dakota Racing Brown. The players trained on prairie chicken cooked over buffalo chips. The standard rigorous exercise was plowing with a dull wooden stick, and five yard dashes through the snow, naked, singing the North Dakota national anthem, Hickory Dickory Jock. And they even won some football games. But when they lost everybody was mad. A great deal of the sportsmanship of the school died with Big Ed. And I guess some more died with the old name. The times had changed, forced into a supercharged image that failed to even measure up to the shadow of the old Mines team. Most of the players tried, but the fans expected too much of paid players and weren't willing to give the same allowances they gave a volunteer team. Ill will grew and spread in spite of everyone's good intentions and before many years the school had a rich football team, but no graduates because all the money had been siphoned into the athletics fund leaving the school with nought but rags.

The moral of this story is: Look around this article at past history and compare it to our current program. And remember, it is better to have played the game and lost than to have all the trophies in the world.

LDS Institutes Welcomes All

by Janet Martin

The LDS (Mormon) Church operates an Institute of Religion on the Montana Tech campus for any interested student. Spiritual growth and development are felt to be important aspects of the education process at the college level, and the Institute program is designed to provide an opportunity for growth in this area.

Formal instruction (not for college credit) is offered in various areas of religious interest. Social activities are also important and joint outings are conducted with Institutes at other campuses in the state.

Weekly meetings are held on Tuesday at six o'clock and membership is open to all that are interested and they are welcome to attend.

Montana Mines Ends 44-Game Loss Streak

BUTTE (UPI) — The Montana School of Mines ended a nine-year 44 game losing streak here Saturday afternoon, soundly and jubilantly defeating Northern Montana College of Havre 33-7.

One of the largest crowds ever witnessed the Orediggers return to the victory column. Some 2,000 fans were on hand for the game.

For coach Ed Simonich the victory was sweet. He had watched his teams lose 44 times. The School of Mines, a training grounds for mining, petroleum and other professional engineers, is a school where football definitely is secondary. On many occasions Simonich himself had had to fill in as a lineman and back during practice sessions where the entire team could not show up because of a rigid study schedule.

Simonich is a former Notre Dame All-American.

The School of Mines opened up the scoring in the first quarter when quarterback Dale Fellows passed from the Northern 22 to Mick O'Brien.

Scored Again

With less than a minute left in the first quarter the Mines scored again with Gary Evans carrying it over.

George Sever kicked the extra point.

Rudy Watchler scored the next Orediggers' touchdown on a one yard run and Sever again converted.

The half ended 27-0 when Mike Hines intercepted a pass on the Northern 32 and ran it over. Fellows passed to Myron Taylor for the conversion.

In the third quarter Severs scored on a three yard run to close out the School of Mines scoring.

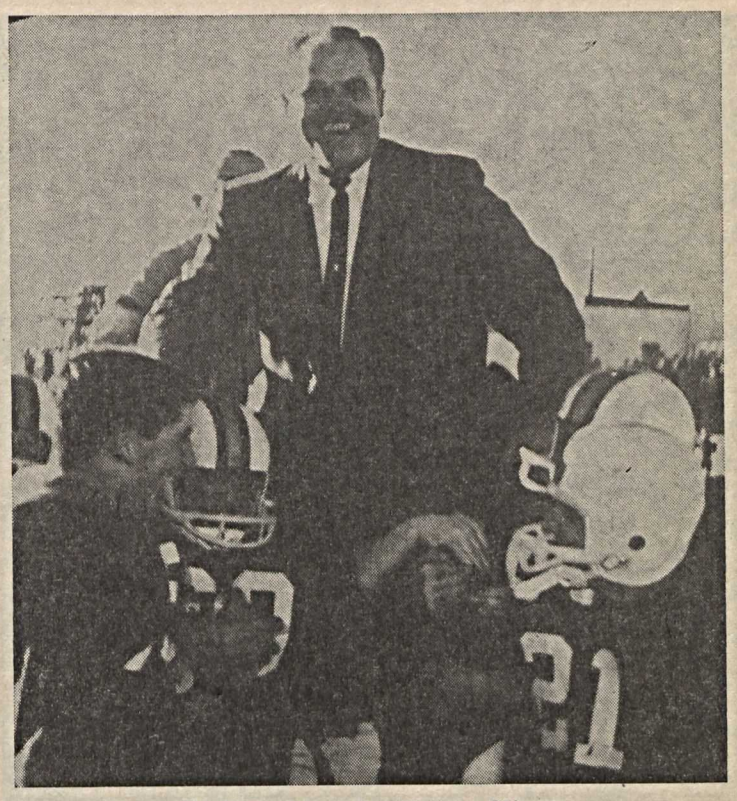
Northern's only touchdown came with 47 seconds remaining in the game.

Quarterback Jerry Mumm passed to halfback Dan Nelson and Jim Huggins kicked the extra point.

Before Saturday's victory, the closest the School of Mines ever came to victory in nine years was a scoreless tie played last year in Butte on a muddy field with Carroll College.

Simonich, a 6 feet 3, 250-pound former athlete has been School of Mines coach since 1957. He said recently that on an average afternoon he has from 12 to 18 players turn out for practice out of a squad numbering about 30.

It past years he has been so short of players that he has used such men as Mohammed Moshin, a 112-pound exchange student from Kuwait who never saw a football until he turned out for the Mines.



Ed Simonich and victorious Miners

DID YOU HEAR ABOUT THE POLLACK WHO . . .

thought a mushroom was a place to neck?

A Woman (Wo)

Walter Weisman, noted authority on guided missiles offers this "Chemical analysis of the creature woman."

Symbol:—Wo

Accepted Atomic Weight:—120

Physical Properties:—Boils at nothing; freezes at any minute

Occurrence:—Found wherever man exists

Chemical Properties:—Possess a great affinity for gold, silver, platinum and precious stones. Violent reaction if left alone. Able to absorb large amounts of food matter. Turns green when placed beside a better looking specimen.

Uses: — Highly ornamental. Useful as a tonic in acceleration of low spirits and equalizer of wealth. Is probably the most effective income-reducing agent known.

Caution:—Highly explosive, in inexperienced hands.

Orediggers Do It

by John Calcaterra

They did it!

After nine frustrating years, the Montana School of Mines Orediggers Saturday chalked up their first football victory in 45 games, a 33-7 homecoming day pasting of the Northern Lights of Havre.

A shirtsleeved crowd of some 2,000, including Senate Majority Leader Mike Mansfield, D-Mont., a Mines alumnus, watched Eid Simonich's gang take control in the opening minutes and never relinquish it as they drove to this long-awaited victory.

When the final gun was fired, Naranche Memorial Stadium was rocked by one of the most riotous spontaneous celebrations ever touched off there. Joyous Mines players carried their coaches—Simonich, Dan McCarthy and Gene Downey—off the field on their shoulders.

A horn-honking, cheering procession led the bus carrying Mines players throughout the uptown business district, a post-game celebration reminiscent of the old Grizzly-Bobcat games played in Butte.

It was a battle of the have-nots in the Montana College Conference. Neither Mines nor Northern had won a game this year. This was the Miners' day; it wasn't Northern's. Chuck Ross' battling Lights tried desperately, but they were up against a determined crew.

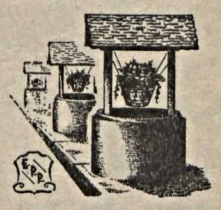
It was a game replete with all the color and thrills of major college football.

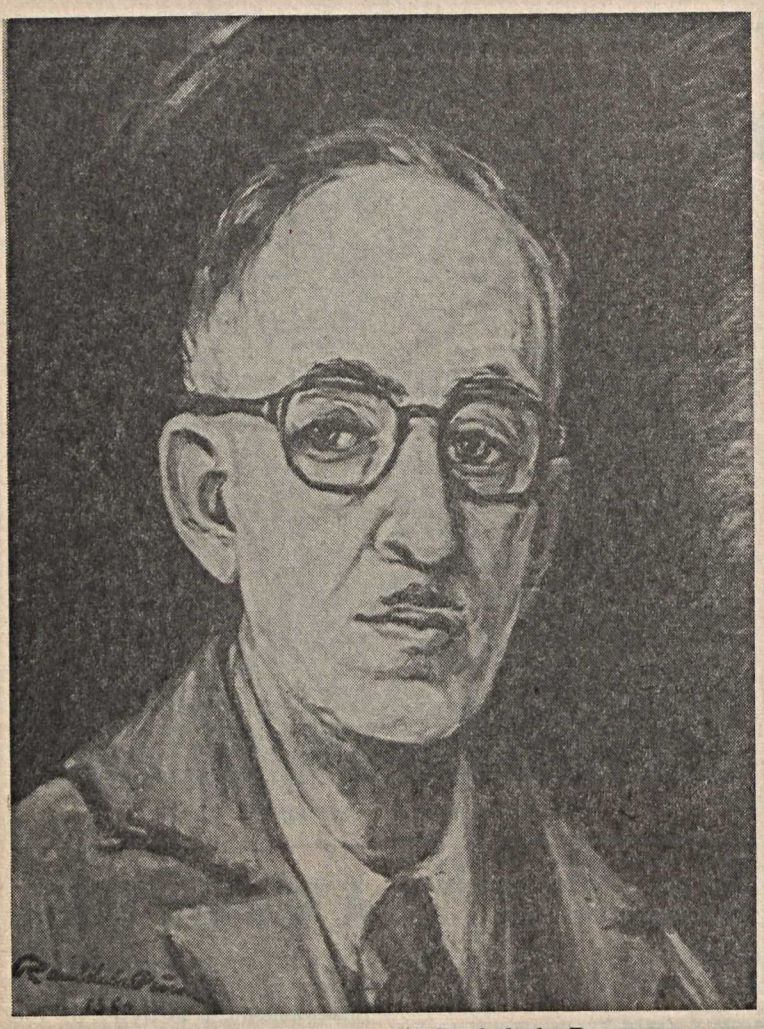
At halftime, Carol Dunstan, a sophomore student, was named homecoming queen. She is the daughter of Mr. and Mrs. C. H. Dunstan, 2700 Locust, and was a candidate also in 1961. Her princesses were Kitti Keane, daughter of Mrs. Mary Keane, 1111 Farrell, and Sandi Skender, daughter of Mr. and Mrs. Rudy Skender, 1127 Utah.

Entertainment was provided by the Butte Central High School band, directed by Martin Cesare. Girls Central majorettes, directed by Mrs. LaVerne Combo and led by head majorette Margie McRae, provided halftime entertainment.

A harbinger of what was to come was a morning homecoming parade though the uptown Butte district. The Butte High School band, under director Ray Sims, and majorettes led by Linda Martin, headed the parade which included the VFW Drum and Bugle Corps.

The enthusiasm carried over to the game where, on a bright, sunny day in Butte, the longest winless streak in the nation came to an end.





Self portrait of the artist Raul de la Pena.

Roger Pierce memorial art collection open to public

The Roger Pierce Memirial Art Collection of 93 oil paintings of the mining and petroleum industry is on display now in the Crystal Room of the Thornton Building, across from the Finlen Hotel from May 27 through May 31st.

Fund raising for the purchase of this collection has been handled by the Montana Tech Alumni Association under the chairmanship of Mr. Jack Hall, president of The Anaconda Company, who was appointed by Pete du Toit, president of the Tech Alumni Association. Roger made the original payment on the collection before his death in June, 1968. The principle donors to the fund which has purchased the entire collection from Raul de la Pena are: American Smelting and Refining Co., Anaconda Co., James Boyd, Copper Range Co., Brower Dellinger, Mrs. James R. Evans, Hecla Mining Co., John Lindsley in memory of George Taylor, National Lead Co., Vincent D. Perry, Phelps Dodge Co., Shattuck Denn Mining Corp., E. McTittman, and the Women's Auxiliary of the A.I.M.E.

Mr. Raul de la Pena, author of the paintings is a Mining Engineer in Mexaco. His works depict the history of mining in Mexico along with 20 paintings of beautiful mineral specimens.

Mr. Pierce had always been a strong promoter for the World Museum of Mineral Arts in connection with the Butte museum. It is hoped that a building can be erected soon at the World Museum of Mining to house this valuable collection.

Roger Pierce Famed Alumnus

Pierce was one of Montana Tech's most distinguished alumni and contributed in great measure to the welfare of the school, both financially and through his worldwide contacts in securing support of Montana Tech projects. He addressed a dinner meeting of the Montana Tech Boosters Club in Butte May 6, 1968.

The 1963-64 president of the American Institute of Mining, Metallurgical and Petroleum Engineers was graduated from Montana Tech in 1935 with a B.S. degree in mining engineering. A year later he received his master's degree in the same field. Montana Tech honored him with an engineer of mines professional degree in 1954 and the honorary degree of doctor of engineering degree in 1963.

During his undergraduate days at Montana Tech he was employed by the Anaconda Co. in various jobs underground, including mining. In 1936 and 1937 he worked here as a research engineer and shift boss for the company. For the next 10 years he was a special representative for the Ingersoll Rand Co. in New York City.

Beginning in 1947 he traveled the North American continent consulting in mine mechanics. Later he established his office as a consulting mining engineer.

Pierce's interest included coownership of the Cate Equip-

(Continued on page 17)

The Raramuri, (El Raramuri), a Tarahumara Indian outside Parral and the mine of LaPrieta, belonging to the Asarco Company in the hills of la Cruz.

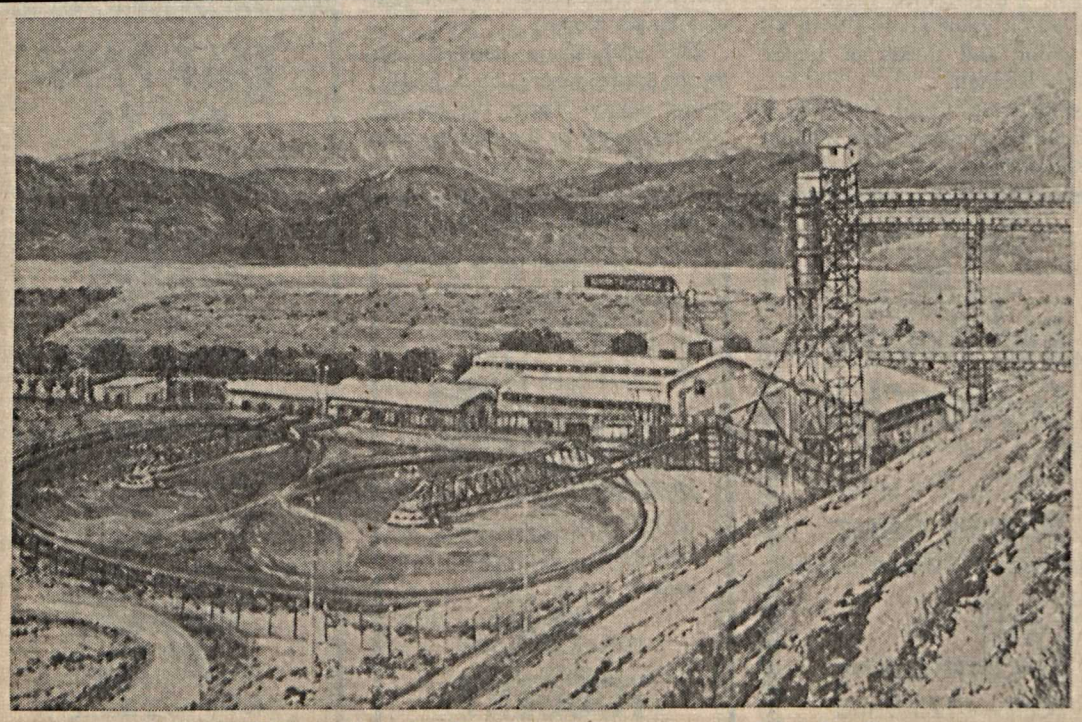
Donald L. Cenis promoted

A graduate of Montana Tech, Donald L. Cenis, has been appointed as vice president of The Chase Manhattan Bank, N.A., in New York.

Cenis, who also serves as the bank's technical director for mining and nuclear energy, was born in **Billings.** He received his B.S. degree in mining engineering from Tech in 1953, his B.S. in geological engineering in 1957 and his Master's in mining engineering in 1957. In 1967 he was awarded a professional engineer of mines degree from Montana Tech.

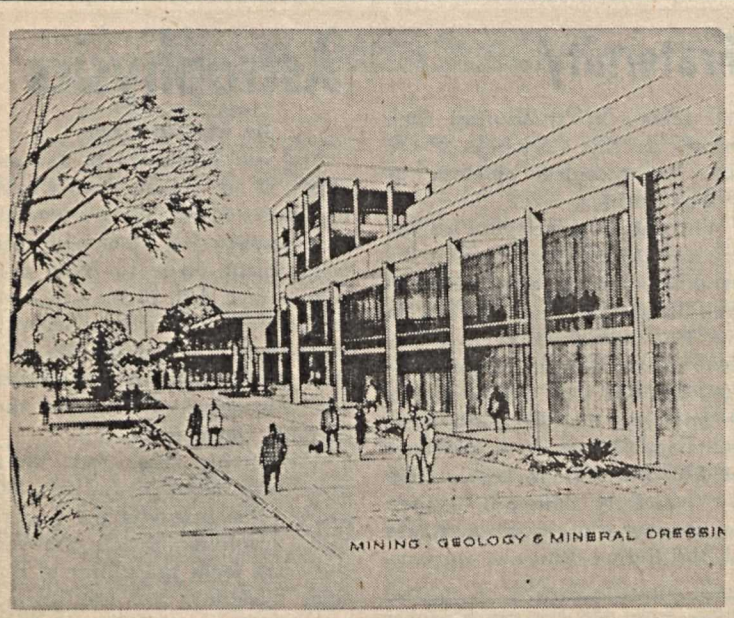
Cenis has also agreed to serve as director of the Montana College of Mineral Science and Technology Foundation.

Before serving in the Air Force from 1953-1955 he was a mining engineer for American Chrome Co. Between 1957 and 1959 he was mine engineer, plant engineer and chief engineer for Wstern Nuclear, Inc., and between 1959 and 1962 he advanced to mine superintendent, general mine superintendent and mine manager. From 1962 to 1964 he served as division industrial engineer for Ray Mines Division, Kennecott Copper Corp., in Hayden Arizona. For two years prior to joining Chase Manhattan, Cenis was administrative assistant to the executive vice president and corporate industrial engineer for Texas Gulf Sulphur Company.



Santa Julia, a plant for flotation of dumps operated by the Commission of Mining Development in Pachua, State of Hidalgo.

Washing Gold, (Lavando Oro), in gold placers in the State of Guerrerro.



Tech Building Plans

The roar of construction equipment was heard across the Montana Tech campus this fall as work commenced on several remodeling projects and new buildings.

A new heating plant, which will serve the entire campus, is scheduled for completion by early summer if weather permits. Contractor for the job is Edward A. Bentley of Bentley Construction Co., Butte. The plant was designed by the architectuarl firm of Walter H. Hinick, also of Butte. Cost of the plant will be $178,742.

The heating plant presently serving Montana Tech is located in the Mill Building. The new plant will have its own building located west of the Petroleum Building.

The college is making plans for more expansion. Remodeling projects which have recently been completed are the renovation of the gymnasium, $68,000; library, $75,000; Metallurgy Bldg., $71,000 and the Petroleum Building, $64,000.

Construction is planned to start on expansion and renovation of the Montana Tech Student Union Building this summer.

The original Student Union Building, built in 1959, will be expanded to house food service facilities, therefore leaving more room in the dormitory which presently houses food service.

According to architect Charles A. Kestle, the new Student Union will have enough dining space to seat 240 persons and up to 400 on a semi-staggered basis. Dining for students on a cash basis, that is students who do not make regular use of the food service, will be about 225 available seats.

There will be a complete kitchen facility, small coffee shop for after-hour use and vacations, and four meeting rooms also suitable for dining. A book store of about 3,200 square feet is included in the plans as is a new game and recreation area and expanded student office space.

Phose one of the plan will be the initial total building plus adequate equipment and furnishings to handle an enrollment at Tech up to 1,000. Other phases of construction will be added as enrollment increases up to 2,000.

The new addition and remodeling will cost an estimated $615,000. Built-in equipment for the food service, coffee shop and others will cost $93,000. Movable equipment and furnishings come to $18,500. Special furnishings for lounges, offices and the games and recreation room is allotted $10,000. The total cost of the project's Phase I plan is $737,000.

When completed the building will have about 28,000 square feet of floor space.

The architect says the roof on the architectural drawing is done in Mansard style. He said "Some new contemporary forms and detail are possible within the Mansard system and yet it is compatible with existing roof forms on the campus."

Work is proposed to begin concurrently on the Student Union Building and remodeling of the dorm. The dorm project at a cost of about $300,000, will double the present capacity of about 130 students.

Named

Dr. C. H. Hewitt has been named associate director for exploration for Marathon Oil Company's Denver Research Center. He replaces Dr. R. Dana Russell who has been placed, at his request, on special assignment until his retirement in 1971.

Roger Pierce

(Continued from page 14)

ment Co., president and owner of Shaft and Development Machines, Inc. and co-owner and officer of the Machinery Center, Inc., all of Salt Lake City. He was president of United Idaho Mining Co., and of the North Beck Mining Co. of Utah. He served as a consulting engineer for clients in the United States, Canada, and Latin America.

Pierce, when he became president of AIME, was the first graduate of Montana Tech so honored. A native of Pacific, Washington, he was the author of a book. "Modern Methods of Scraper Loading and Mucking," and innumerable technical articles in professional mining journals.

Among honors Pierce received in the professional field were numerous offices in the AIME, including chairmanship of the William Lawrence Saunders Gold Medal award, the Jackling award and others for outstanding achievements in mining circles. In addition to AIME, his memberships included the New York City Mining Club, Canadian Institute of Mining and Metallurgical engineers, the Mining and Metallurgical Society and Masonic Order, including the Shrine.

His prime interest aside from his mining career, was in Montana Tech. He visited Butte often and most of his visits were related to his interest in the College.

In his May address before the Tech Boosters he predicted the school could continue to grow as one of the world's finest minerals engineering training centers and urged that degrees be strengthened in every facet. He spoke for a top notch research center and also suggested a drive to secure a research center and also suggested a drive to secure a United States Bureau of Mines station here.

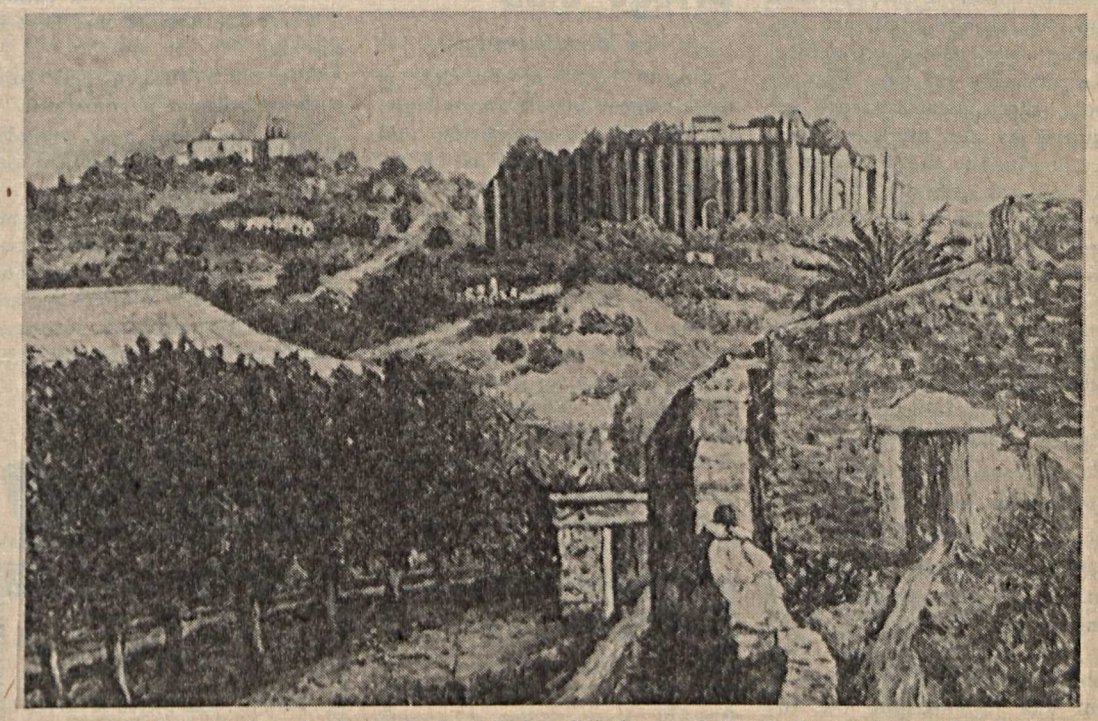
Pierce financed the campus planning program instituted by the Montana Tech Alumni Association some years ago. He also sponsored several research programs at the school, or helped secure sponsorship. He was active in the Sigma Rho Fraternity and gave financial assistance for the opening of the Sigma Rho House on West Park.

He was equally interested in the Butte World Museum of Mining. During his May visit here he announced the museum would receive 93 oil paintings on the history of mining in Mexico and throughout the world. The collection is the work of Raul de La Pena, a mining engineer and artist of world note. Pierce led in financing the collection for Butte.

He also said the museum will acquire 40 or more pen and ink sketches, the work of J. C. "Buck" O'Connell, a native of Buttte, now in Salt Lake City.

Pierce also advocated the establishment here of a metals museum, "The World of Metals," to augment the start of a world museum of mineral art.

Roger Pierce



Hacienda of the Moon, (Hacienda de la Luna), beneficiation and the walls of the shaft of the mine Rayas, discovered by Juan Rayas in Guanajuaco.

Geology degree candidates

Geophysics Dept.

by Mary Ann Walker

The Department of Physics and Geophysics offers a degree in geophysical engineering. The student has several options allowing specialization in the field of his particular interest. Emphasis may be placed on mathematics, physics, or geology depending on whether the student is interested in exploration or engineering applications. Completion of the requirements leading to a degree in geophysical engineering prepares the student for direct entry into industry or graduate school.

The geophysical engineer is concerned with the measurement of the physical properties of the earth's crust. Measurement of the earth's gravitational and magnetic fields of electrical and elastic properties enables him to determine subsurface conditions and geologic structure which are favorable for the occurrence of economic oil and mineral deposits. His laboratory extends from the center of the earth to far out space. He will find many opportunities to use his talents. A geophysicist may find himself probing deep into the earth's crust or he may find himself involved in making these same measurements when our first astronaut lands on the surface of the moon.

Measurement of the physical properties of the earth are frequently required for economical or engineering reasons. For example, these measurements are required by the mineral industries involved in the discovery of new mineral deposits. Exploration Geophysics is the term applied this branch of Geophysics. Sub-surface information may also be required for the placement of large structures such as dams or bridges. Engineering Geophysics provide the necessary data and interpretation of these sub-surface conditions.

At present, there are many opportunities in Montana. Several seismograph parties are working to increase oil production. Small mine operators are using gravity and magnetic methods to locate ore deposits. The Montana State Highway Department has seismograph and resistivity equipment. Many of the groundwater problems in the state will eventually be solved with the use of geophysical methods.

The curriculum in geophysical engineering entails a four year study of Physics, Mathematics and Geology. Mathematics, of course, is fundamental to the study of all physical sciences and engineering. Physics must be studied because it deals with all of the physical phenomena encountered in Geophysics and the fundamental principles underlying the instruments which are used by the Geophysical Engineer Interpretation of geophysical data must be founded on a sound knowledge of Geology. The student is able to be selective and develop a major area of interest within the field of Gophysical Engineering.

A total of 145 semester hours of study in the curriculum must be completed satisfactorily for a student to graduate from Montana Tech with a degree in geophysical engineering.

As yet, there is no graduate program in this field, but advanced undergraduate courses in other departments may be very useful for the graduate work. They range from Instrumentation and controls to Earthquake Seismology.

Bridge Club

by Mike Bowman

One of Tech's newest clubs is the Bridge Club. It shows signs of becoming a progressive and stimulating organization. It is hoped that this club will gain more student interest in the future. With added participation its activities will grow and develop.

Any student who likes to play cards is passing up a valuable chance to learn this famous game right here on campus. Not only are you taught by fellow students who will take their time and teach you individually, but you may also benefit from actual tournament play.

Sigma Rho Fraternity

by Carol Turk

The Delta Chapter of Sigma Rho, the first chapter of the National College Fraternity to be associated with Montana Tech was installed on May 10, 1927. Originally Sigma Rho was a professional engineering fraternity for mining engineers but has since been expanded to include all mineral industry engineers.

Although there are only two chapters of Sigma Rho, members of the fraternity are actively engaged in the engineering profession and can be found throughout the nation.

Much of fraternity life is social, but there is also a serious side of which the fraternity is actively promoting Montana Tech and the engineering profession by working with the school in an attempt to enlighten the public as to what engineering consists of and its relations capacity for the school by sponsoring such events as the Christmas Party for the retarded children at Warm Springs.

The only requirements for entry into the fraternity is that the candidate must be a engineer and well liked. In order to live in the Rho house however, a student must be in sophomore standing but it is not necessary to have any specific grade-point standing. There is a set dues of $10, but this is kept within the fraternity house, it is used to sponsor the social activities of the Sigma Rho.

A focus on Tech's Camera Club

by Mary Ann Walker ....

Montana Tech's Camera Club, organized last year, has given many Tech students the chance to improve their picture taking ability.

The Camera club encourages good picture taking to benefit professional work, illustrate industrial programs, assist in geological study and provide an enjoyable hobby.

Under the direction of Mr. William Howell, the club, so far this year, has sponsored a picture taking contest, built a dark room in the dorm, and have secured a contract with the "Magma" to do all annual photography and printing.

The club, as of now, deals exclusively in black and white photography but hopes to go into color printing in the near future.

There are now 12 members in the club.

Any Tech student may join, with or without a camera.

Plans for next year include: bringing in outside speakers and recruiting more members.

So all you photography fans who are interested, contact one of the officers Mike Dewey, Bob Chebul or Clark Walters for additional information.

The Newman Club

by Jane Rohret

Among the many clubs and organizations at Montana Tech dealing with hobbies, studies, careers, and interests are the ones concerned with religion. The Newman Club is one of these, and is an active and useful organization on the campus.

Montana Tech, being a state school in the Montana University System, is not of sectarian interest. The Newman Club seeks to promote growth, concern, and understanding about God among the students and staff at Montana Tech.

Organized on a national level in 1893, this Roman Catholic organization seeks to make Christ a primary subject in the lives of young Americans. Membership has continually expanded in the Newman Club, and there are now over 300,000 members in the several nations in which the Newman Club is now established.

As the club serves to develop Christian maturity in its members, there are many activities and ideas in which they participate. They hold regular business meetings to review club ideas and projects. Also there are study hours in which the club may sponsor speakers, movies, or other media for their Christian influence. Newman Club has made many useful contributions at Montana Tech, among which are a set of books now in the library.

Astrophysics

by Colleen Caron

Are you interested in astronomy? If so, perhaps you would be interested in taking a course in Astrophysics. The Physics Department plans to offer this course next fall, if the students and community are sufficiently interested. If you would like further information, please contact Dr. Michael J. Doman in the Physics Department.

"Astronomy has had three great revolutions in the past 400 years: The first was the Copernican revolution which removed the earth from the center of the solar system . . .; the second occurred between 1920 and 1930 . . .; the third is occurring now, and whether we want it or not, we must take part in it. This is the revolution embodied in the question: Are we alone in the universe?" (Otto Struve).

Astrophysics will be a two- or three-credit course (prerequisite for the course will be consent of the instructor) and will include the following subjects along with others:

I. The Solar System: its Or- Origin and Evolution
II. Stellar Evolution
III. Galaxies
IV. Extraterrestrial Life

Lecture discussions and outside reading will comprise most of the course. At the end of the course, a term paper will be due on some subject concerning Astrophysics.

"The purpose of the course is to introduce the participants to the multidisciplinary nature of Astrophysics, since it draws from all areas of science and engineering."

Fundamental foundations of **all** science for investigating our universe will be emphasized. Detailed calculations will **not** be stressed, but the course will try to analyze such calculations and apply these ideas to astrophysics. It is anticipated that non-engineering as well as engineering students will try to make this course successful.

Mining Department

by Colleen Caron

"The mining engineer is charged with the duties of designing systems of men, machines and techniques for the efficient and safe extraction of mineral from the earth. His education must have its roots in the art of mining as developed through time and experience as well as in the world of science which provides him with a continual stream of new knowledge of nature. Sustenance derived from the latter source make mining engineering education both dynamic and progressive."

The objectives of the mining engineering curriculum at Montana Tech are to prepare the student to do his best to continually maintain and improve men's physical environment, to gather as much useful information as possible from the increasing knowledge of basic sciences, to "prepare the student for analytical and creative design for construction, production or operation," to develop leadership, a sense of professional ethics and provide the individual's general education.

Montana Tech is located in one of the greatest mining districts of the world. Full advantage of opportunities for learning of the mining industry are taken by means of field trips and research. Students gain experience through employment in local mines, which also helps with the financial area of their education.

Mining engineers, geologists and metallurgists operate in three basic areas: Exploration, Production and Benefication. They may also be in management—possibly a combination of these called "systems engineering."

In exploration, he looks, not only to find minerals, but to anticipate problems that may come up in removing them.

In the production area, the mining engineer must precisely map the location of an ore body to see how large it is, which way it lies, what it contains, and factors that will determine how it will be mined. The task is to mine the ore and move it to the beneficiating plant in the safest, most inexpensive way possible.

In benefication, metallurgists decide what steps to use, maybe involving new methods, helps design new equipmnt and combins this into a procssing plant.

The minerals engineer in management is concerned with producing a refined mineral that mankind can use. He must make everything work smoothly, at a minimum cost. He must understand all aspects of each area.

A mining engineer can rise rapidly to the top of his field because there are always opportunities for such a person; more and more are needed and not enough are graduating. Minerals engineers get the satisfaction of doing something important for mankind and they get very high salaries and the chance to achieve success.

Geology Dept.

by Gary Rowe

Tech's Geology department offers a variety of study for students such as, geological engineering, mineral geology and many other related fields. The department head is Dr. Earll who said that there will be three graduating seniors this June and four graduate students.

The areas of employment for the graduating seniors are many. Some of them are going to work for mining companies and others are going into exploration work for various oil companies. State and federal geological surveys are another source of jobs for the student who is going to get a degree in Geology. The department embarked on many activities during the past school year and is planning more for the coming year. A secure and fulfilling career is offered to the student who wishes to pursue an education in Geology.

WRA active this year

by Carol Stolz

Women's volleyball teams, mixed volleyball teams, badmitton (both doubles and singles teams), and aerial darts teams were organized and tournaments played.

The 5 women's volleyball teams played a Round Robin Tournament and "The Team" won. Bev LeProwse, Diane Hoar, Suzie Foote, Kathy O'Neill, Margie Kavran, Janet Turk, Carol Trythall, and Margie Hoar were the members of the winning team.

Eight teams participated in the mixed volleyball games. Two leagues wee formed and each league played a Round Robin Tournament. Then the top two teams played an elimination game in which "The Minors" won. Members of the winning team were Barbara Cockhill, Pat O'Brien, Pat O'Hara, John Blumer, Bob Miller, Ginger McNellis, Linda Howard, and Carla Hussein.

Four doubles games were played in badmitton. Margie and Diane Hoar won the doubles championship. Diane Hoar beat Janet Martin in the badmitton singles.

Seven aerial dart teams were organized and a tournament was played. "The Spastics", consisting of Diane Hoar, Margie Hoar, Kathy Mahoney, and Sandy Green won.

Saturday, May 10, WRA sponsored a "Play Day" at Tech. High school girls from Anaconda and Butte Central, and coeds from Tech attended. The girls played softball and volleyball games and lunch was served in the SUB at noon. In the afternoon, girls could play badmitton or swim if they wished.

This year's officers of WRA were Barbara Cockhill, President; Ginger McNellis, Vice-President; and Carol Trythall, Treasurer. Election of officers for the coming year will be held and the new officers announced at the AWS Tea.

Mineral Dressing Department

by Janet Martin

Mineral Dressing Engineering is concerned with the separation of materials through the application of physical and chemical processes. Professional education for the Mineral Dressing engineer begins after the student has had a foundation in the physical sciences, mathematics, and engineering principles. These basic courses are necessary for the student to understand the science and engineering involved in the separation and concentration of materials. With these courses engineering students must take courses in the humanities and social studies for awareness of their obligations and responsibilities in society.

In the junior and senior years, the courses of instruction are designed to focus the student's endeavor upon his professional needs in Mineral Dressing Engineering. A series of courses in the Department of Mineral Dressing are designed for the student's professional development. Not only are the courses related to the basic disciplines, but the student is presented with descriptions of processes, unit equipment, and realistic problems.

Undergraduate and graduate students and faculty members are all involved in a partnership of effort for the solution of problems through research activities. Of course, the basic sciences and mathematical logic are a part of each project. These prerequisites for the research problem are necessary for the development of the student, whether he be an undergraduate or a graduate.

At present the Mineral Dressing Department, headed by Professor D. W. McGlashan, is engaged in a research contract from White Pine Copper Company, White Pine, Michigan. The object of this research is to study the effects of various ions on finely divided chalococite. The project has the help of most persons in the department and has served as the source of thesis and research papers.

The Mineral Dressing Department will award degrees to five men this spring. Receiving Masters Degrees will be Mr. Robert Ramsey, Mr. Brian Raymond, and Mr. Graham Cadwell. Those receiving Bachelor Degrees are Mr. James Michcott and Mr. Bruce Wright.

This department will also see a change in assistant professors. The present assistant head of the department, Mr. Villena, who is an alumnus of Montana Tech with a Master's Degree and who has been a member of the faculty here for two years, will pursue work in industry at the Alcan Company in New Jersey. He will be replaced by Mr. Gordon Ziesing, who is presently engaged in industry at Miami, Oklahoma.

Metallurgy Dept.

by Carol Turk

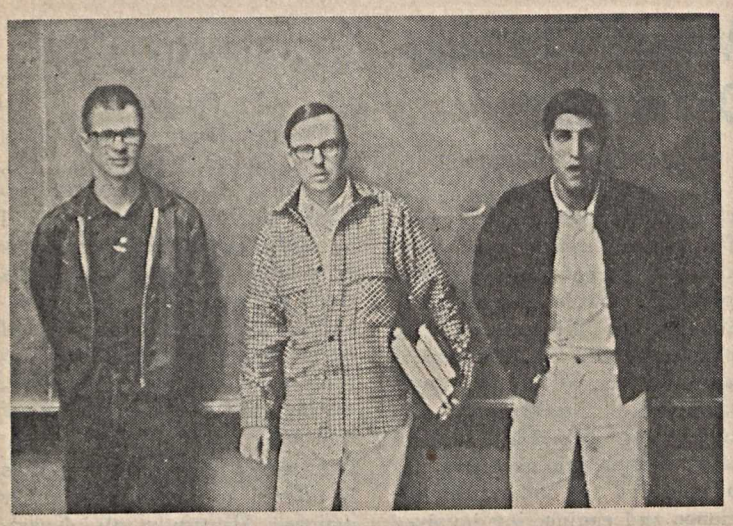
The metallurgy department is staffed by Dr. Vernon Griffiths, Dr. Lang Twidwell and Professor Ralph Smith. Since the field of Metallurgical Engineering is very broad these staff members teach subjects ranging from ceramics to crystallography and from extractive metallurgy to reactor metallurgy, corrosion, casting and the metallurgy of iron and steel.

A senior course in materials is offered to students of other majors. Hopefully all departments will in time require this course since it is regrettable that in general engineers are apt to be less than knowledgeable about a great many of the materials they commonly deal with.

Rightly or wrongly, the curriculum for the Bachelor of Science in Metallurgical Engineering is reputed to be difficult and it is true that considerable chemistry and physics are required, whereas the metallurgy courses are no push-overs either. However since metallurgy is, in many ways applied chemistry and physics, such emphasis seems necessary and, hopefully, no more than the timid and indifferent students are discouraged.

Except insofar as a student chooses his electives, the Bachelor of Science curriculum is not specialized in any particular field of metallurgy and accordingly the new graduate can enter the metallurgical profession in any of its diverse branches. A recent graduate is now one of the nation's experts in the application of aluminum to automobile trim. Another recent graduate now owns his own business dealing in secondary metals; another is a nuclear power reactor expert, whereas others are "big wheels" in the non-ferrous metal industry. A good many have gone to or are in the process of attending graduate school studying toward their Master of Science or Doctrate degrees.

At the present time employment opportunities for metallugists are probably better than ever and there is every reason to believe that this situation will continu. As is noted in the lead article of the current **Journal of Metals**, John Ziman, an eminent physicist, has said "while the last two decades may well have been the era of solid state physics, the next two decades may well be the epoch of Materials Science." The significance of this statement for the metallurgical industry could be revolutionary. Thse are already about us, in the metallurgical world, signs of changes in processes, materials, and outlook that may well herald the early arrival of the Material Age.



Metallurgy degree candidates

Major fields open for chemists

by George Rider

The chemistry department of Montana Tech dates back to the origin of the school. The primary purpose is to serve as a systematic study of undergraduates in the fundamental principles of inorganic, and physical chemistry. Additionally, the department enables those students who wish to obtain a chemistry major to gain a well established background in the principles of chemistry.

Once a person has received his degree in Chemistry he finds that the employment opportunities to be as plentiful as they have been in the past. Salaries for new chemists and chemical engineers continue to increase. The early season offers were up the usual 5 to 6%, according to Professor Endicott's survey. The Endicott survey found that the average weighted starting salary for this year's chemist is $754.00 a month. Some of the companies have expressed that they will go as high as $810.00 per month.

Being a chemist offers so many possibilities that may not have occurred to you. Today, chemistry does not stop with research or teaching, but continues to additional categories such as chemical editing, indexing, information systems analysis, computer programming and many other jobs too numerous to mention.

Circle K

by John McGinley

Circle K is the largest college organization in existence—there are over 60 clubs throughout the United States and Canada. The primary purpose of Circle K is to actively serve the college and the community. It is strictly a men's organization, having no female members or women's auxiliaries. Any male student that meets the minimum scholastic and attendance requirements of his college and has a desire to serve, is eligible for membership. in Circle K.

Circle K was founded at Tech four years ago, and claimed a membership of Tech students the sponsoring of several dances this past school year. Besides and the annual College Days activities, Tech's Circle K also hosted this year's State Circle K Convention.

The Magma

by Charles Smith

The Montana Tech yearbook which is called the Magma will be available in the fall of the next academic year. The reason the yearbook is published so late is so that all of the activities of the past year can be compiled into one single volume. The book is a compendium of all of the memorable events and occasions that have taken place during the school year presented in pictorial form as a keepsake for all those that attended the school during the last year. The yearbook has been intermittently published throughout the school's history. It has had several names and at one time was called "The M".

Mr. Young, who has been the advisor for the Magma over the past seven years, announced that this forthcoming edition will be smaller in size due to the omission of class pictures. He stated that the reason for not having class pictures during the forthcoming volume was due to a lack of interest on the students part?

Copper Guard

by Mary Rowe

Since 1935 the Copper Guard had been in service to Montana Tech and its students. It received membership to the Intercolligiate Knights, a service organization on many Montana campuses, in 1937. The present Copper Guard however, is no longer affiliated with the Knights because they found it hard to maintain the dues required.

Although they are one of the oldest clubs on campus, they still perform many invaluable functions for the school. The club is composed of fourteen members whose main function is the maintainance of the "M". When one of our school teams manages an athletic victory, the Copper Guard changes the lights forming the "M" to a "V". On holidays, they change the customary white lights to fit the traditional colors of the current holiday.

They also perform many other services, such as, sponsoring the registration dances, the "M" day dance and the organization of the activities on "M" day. Membership to the club is on a strictly selective basis making it a very elite group. You have to be a sophomore engineering student and be voted in by the members of the preceding year's club. Art Duggenhart was this year's president and Rick Dale was secretary. Professor McCaslin is the faculty advisor.

International Club

by Carol Stolz

The International Club at Montana Tech is composed of students from Liberia, Iran, India, Arabia, Canada, Peru, and Chile, as well as several local students.

During the past school year, the club has been quite active. Many of the foreign students gave talks about their countries, and the annual Easter dance held this spring was sponsored by the International Club.

The purpose of the club is to acquaint foreign students with one another and increase goodwill between them.

Petroleum Dept.

by Carol Stolz

The Petroleum Department is under the direction of a department head and 2 staff members. Dr. Herbert G. Warren is the head of the department and also a professor in the department.

The function of the department is primarily to educate students for work in the petroleum industry. Secondly, the petroleum department prepares scholastically outstanding students for graduate work if they so desire. Graduate work in petroleum engineering is available at Tech. Approximately one out of every ten graduates of the petroleum department goes on to graduate school soon after graduation.

Graduates from the petroleum department choose from a wide variety of job opportunities offered to them. Graduating students become petroleum production engineers, petroleum reservoir engineers, drilling contractors, managers (many of which continue their education in other specific fields), pipeline engineers, oil field service company personnel, and employees in gasoline plants. In the past twenty years, graduates from the petroleum department have become owners of their own businesses, lawyers, bankers, and division and district engineers. Jobs (all over the world) are offered to graduating petroleum students: Canada, Alaska, South America, North Africa (four 1969 graduates of the department have been given jobs in Tripoli), and all over the U.S.

This year there are 79 Engineering students, 38 of whom are upper classmen. Also this year, 17 scholarships totalling $7,650 have been awarded to students from various oil companies. A total of approximately $15,000 in scholarships have been offered to the petroleum department for the 1969-1970 school year.

History & Purpose of Theta Tau

by George Rider

Founded October 15, 1932, at the University of Minnesota, Minneapolis, Minnesota, Theta Tau was created by Erich J. Schrader and associates to place Engineers in the same status with Doctors and Lawyers. Theta Tau first used the skull and cross as their symbols but it seemed a little archaic so they changed it to the Greek symbols OT. The purpose of Theta Tau is to create a brotherhood for the professional development of Engineers in the united effort of mankind.

There are nearly 30 chapters of OT in all parts of the United States, so it has become necessary to organize a central control which is called "National" and a designated portion of the dues is payed by each member to the "National" which organizes conventions, prints literary material and handles correspondence between the chapters. Robert E. Pope, executive secretary, works full time handling all important matters. His salary is paid from the member's dues and is minimum, considering he is a licensed Engineer.

OT works with organizations such as AIME, which is also trying to ensure that Engineers are recognized as professionals and given the respect according. Engineers now take an exam similar to bar exams and are licensed the same as lawyers.

OT is the only national fraternity on campus. The requirements for membership into the fraternity is that the candidate must maintain a certain grade point, meet the approval of the other members, and be an engineering student.